**Call Me in Tokyo, If You Can: Globe-trotting CIO John Halamka discovers it isn't easy to find a single voice/data device that works in the U.S., Europe and Asia.** PAGE 28

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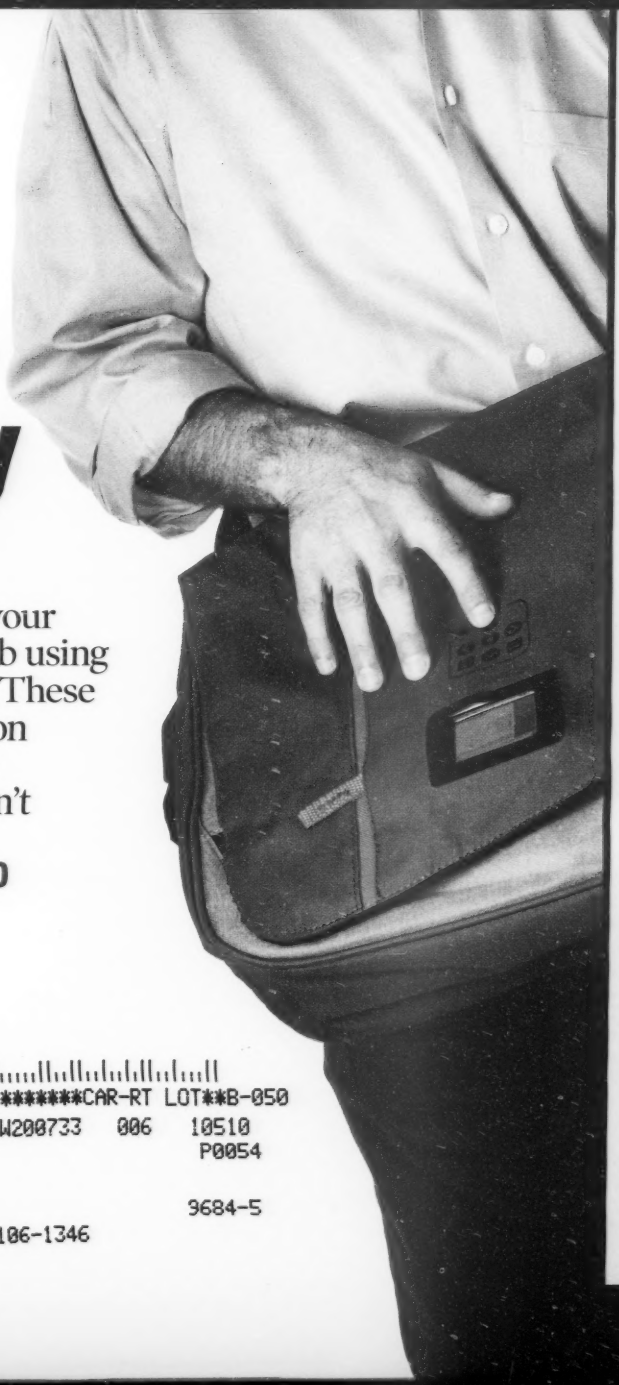

COMPUTERWORLD'S HORIZON AWARDS 2007

## Brainy Tech

Read e-mail on your bag. Surf the Web using eye movements. These and other Horizon Award-winning technologies aren't science fiction anymore. **Page 30**

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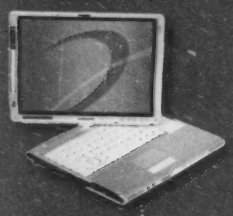

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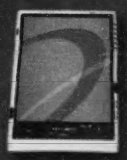

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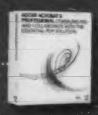

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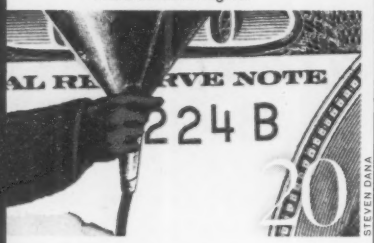

STEVEN DANA

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# COMPUTERWORLD HORIZON AWARDS 2007

# Brainy TECH

NEC phones equipped with CRAMES. Page 49

**COMPUTERWORLD'S HORIZON AWARDS were created to make readers aware of cutting-edge technologies that are moving out of research labs and toward the mainstream.**

**PACKAGE BEGINS ON PAGE 30**

**This year's 10 winners include the following:**

**32** Symantec Corp.'s Norton Identity Client: **If widely adopted, this identity system could help secure Web transactions.**

**36** Cleversafe Inc.'s Cleversafe Dispersed Storage: **These unique algorithms disperse data over the Internet to servers on a grid.**

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**49** Northwestern University and NEC Laboratories America's CRAMES: **A memory compression technique that doubles storage in embedded systems such as cell phones.**

**ONLINE ▶ Find a full list of the 10 winners and 10 honorable mentions, with links to demos and other resources, at computerworld.com/horizon.**

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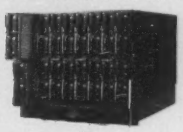

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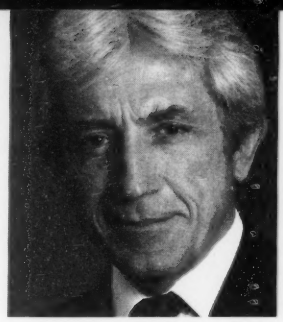
■ EDITOR'S NOTE

Don Tennant

# Dear Charles



AN OPEN letter to Charles Wang, founder of Computer Associates (now CA):

I realize I'm probably one of the last people on the planet you want to hear from, but I felt it was important that I write this letter anyway.

We've had our ups and downs, I know. Remember when I interviewed you in the early '90s, and how you enjoyed our encounter so much that you put your arm over my shoulder and grinned as we posed for the picture you insisted be taken of the two of us following the interview? And then just a couple of years later, I found myself on your blacklist because you were incensed by a column I had written that poked fun at you and CA because of some of the goofiness that went on at that year's CA World user conference. It was all in good fun, Charles. I didn't realize you had such a thin skin.

Anyway, Charles, I want to share a quick story with you.

Earlier this month, when I was in San Francisco to attend the Next Generation Data Center conference, I happened to witness history from the periphery.

On the evening of Aug. 7, I was in my hotel room when some bright flashes reflected in the windows of the building across from the hotel caught my eye. At first I thought they were flames, but then I realized they were fireworks. And it finally dawned on me what was happening. Barry Bonds had hit No. 756 at AT&T Park, just a few blocks down Second Street from my hotel.

I turned on the TV, and there indeed was Bonds basking in the adulation. Everything was going the way he probably dreamed it would, until the post-game press conference was well under way and the elephant in the room could no longer be ignored. A reporter asked Bonds if he had a message for Greg Anderson, his former trainer who was sitting in prison less than 40 miles away for refusing to testify in the ongoing investigation of steroid use by major league baseball players.

**■ You're the one who shot the illegal performance-enhancing drugs into CA. Your fingerprints are on the needle.**

Bonds' expression turned to stone. "Why are we in this conversation?" he asked. "Just another negative question. I'm not going to get into that."

You probably know where I'm going with this, Charles. As you're no doubt very much aware, just one week later, there was another person sitting in prison while a former associate was living the high life.

That's right, Charles, I'm talking about Sanjay Kumar, your protégé and successor, who pleaded guilty to those accounting fraud charges, and who entered a minimum-security correctional facility in New Jersey on Tuesday to begin paying the 12-year price for his misdeeds.

So as Sanjay languishes in prison, Charles, and you continue to enjoy the good life among the Long Island elite, let me ask you: Do you have a message for Sanjay?

I can just see that icy stare of yours, Charles. Of course you have no message for Sanjay. What could you possibly say to him at this point?

So, Charles, I have a message for you: This isn't right. Sanjay is guilty of some devastatingly poor judgment, but you're the one who shot the illegal performance-enhancing drugs into CA. The Special Litigation Committee of CA's board of directors said it has found that "fraud pervaded the entire CA organization at every level and was embedded in CA's culture, as instilled by Mr. Wang, almost from the company's inception." Your fingerprints are on the needle, Charles.

CA is still waiting for the court to determine whether the company can sue you to recover the millions of dollars in damages you've caused. Hopefully, it'll get the go-ahead, and you'll have to answer for what you've done to CA's customers, employees and shareholders. May that be the message Sanjay receives, Charles. And may it be soon. ■

**Don Tennant** *is editor in chief of* Computerworld. *Contact him at don_tennant@computerworld.com.*

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## ■ LETTERS

### Run Elections the Way A Business Would

I heard Florida Secretary of State Kurt Browning ask on NPR if the amount of time spent in defending the voting system and trying to prove to the public that it's accurate and secure is worth the effort when we should be spending our time running good elections ["Diebold Flaws Pose Election Risks in Fla.," News, Aug. 6].

Oops. The voting system is not secure. And until it is, you can't run a good election. Still, his words drill to the core of Florida's voting woes. There's time to do it over, but never time to do it right. The recent testing in California and Florida that revealed flaws in the systems should have been conducted prior to squandering our tax dollars — and our votes — by buying the machines.

It's time to start thinking like a business. Let's define the problem before we rush to another solution, implement more rigorous guidelines for voting machine providers and election officials, and fix our election laws to protect us from machine and human error — and human interpretation. Until we do, our election process will continue to be broken.

■ **Lani Massey Brown,** *Bradenton, Fla.*

### Disingenuous Answer

It seems to me that Don Tennant's "Official Response" [Editor's Note, July 30] to those who questioned the validity of the *Computerworld.com* article "Your Boss Is Spying on You Right Now. What Can You Do About It?" was something of a nonresponse. Tennant argues that because *Computerworld* has engaged its readers, it has done its job. However, I daresay that articles on how al-Qaeda could publish to the Web in secrecy would also garner a lot of attention, albeit not really the kind that IT managers would find particularly useful.

Had Tennant employed alternate reasoning, such as "management must be made aware of what is otherwise publicly available information in order to concoct a reasonable response," then it would seem that *Computerworld* had indeed done its job. What he actually said seems a bit disingenuous.

■ **Bob Fately,** *Van Nuys, Calif.*

## COMPUTERWORLD.COM

### Weird, Scary And Bizarre iPhone Tales

**Step right up, folks! See amazing wonders of the iPhone world! Here are the oddest, most curious iPhone stories.**
**computerworld.com/mobilewireless**

### Grid Computing: Term May Fade, But Features Will Live

**Sharing resources is still the plan for many corporate users; the question is whether grid will help them get there most effectively.**
**computerworld.com/hardware**

### Review: Norton 360, Security Without the Bloat

**Symantec's newest security suite aims to protect PCs from a variety of threats without hogging system resources. Our reviewer has found it does just that (mostly), but our readers beg to differ.**
**computerworld.com/software**

### Linux Command-Line Cheat Sheet

**This reference guide, from *The Official Ubuntu Book*, can help you remember the syntax for a specific Linux command.**
**computerworld.com/software**

### *RailsSpace* Hits the Ruby on Rails Learning Sweet Spot

**Striking a welcome balance between technical detail and readable prose, this book helps show what the Ruby on Rails hoopla is all about, says our reviewer.**
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# News Digest

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## THE WEEK AHEAD

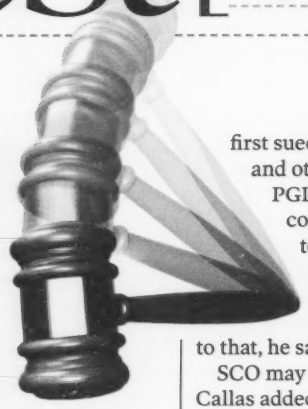
**MONDAY:** Microsoft CEO Steve Ballmer and Cisco Chairman and CEO John Chambers will discuss the future of the IT industry at an event in New York moderated by TV host Charlie Rose.

**MONDAY:** The VoiceCon San Francisco 2007 conference will open, with the agenda focusing on corporate IP telephony.

**TUESDAY:** At a press conference in Boston, Intel, along with PC vendors such as Hewlett-Packard and Dell, will launch a "next-generation business client platform."

OPERATING SYSTEMS

## Ruling Against SCO Provides 'Small Relief' To Linux Users



A FEDERAL judge's ruling that Novell Inc., not The SCO Group Inc., owns the copyrights to Unix has thrust the intellectual property battles begun by SCO in early 2003 back into the IT spotlight.

But several IT managers and industry analysts said last week that they long ago stopped viewing SCO's legal campaign against Linux backers as a threat to users.

Some added, though, that a potentially serious legal threat still exists, in the form of Microsoft Corp.'s claim earlier this year that Linux and other open-source technologies infringe on 235 of its patents.

Jon Callas, who is both chief technology officer and chief security officer at PGP Corp., said the pro-Novell ruling handed down Aug. 10 by U.S. District Judge Dale A. Kimball was "a small relief" for his company. PGP uses Red Hat Linux and Novell's SUSE Linux internally, and it sells server-level security tools that run on a custom version of Linux.

Callas said that when SCO first sued IBM, Novell and other companies, PGP officials set contingency plans to switch to the FreeBSD version of Unix. But it has never come to that, he said.

SCO may well appeal, Callas added, "but it's kind of like the Black Knight in the Monty Python movie, who lost his arms and legs and said, 'Come back here, and I'll bite your kneecaps.' "

Gartner Inc. analyst George Weiss agreed via e-mail that Kimball's ruling should help relax any jittery Linux users. But, he cautioned, "don't forget that Microsoft has stepped up to the plate on the patent-infringement side."

Darl McBride, SCO's president and CEO, wrote in a letter to customers and business partners that company officials "will continue to explore our options with respect to how we move forward from here."

But SCO's legal claims ran out of steam long before Kimball's ruling, said Rob Enderle, an analyst at Enderle Group in San Jose. He wrote in an e-mail that most users have "looked at this like a soap opera, and not one they were particularly interested in anymore."

*— Todd R. Weiss*

**"The case has not yet been fully vetted by the legal system, and we will continue to explore our options with respect to how we move forward from here.**

**DARL McBRIDE**, PRESIDENT AND CEO, SCO

SECURITY

## Visa Warns Merchants Of Deadline for PCI Compliance

**VISA U.S.A. INC.** this month warned large merchants that they will face fines and higher credit card transaction fees unless they fully comply with the Payment Card Industry (PCI) data security standard by Oct. 1.

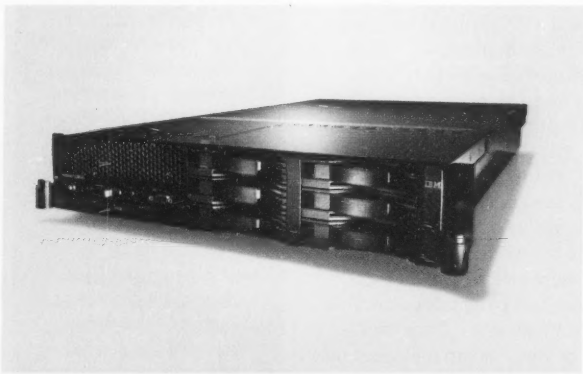
Visa sent that message to the banks that process card transactions for merchants. The "acquiring banks," which are charged with enforcing the PCI requirements, passed the warning on to their clients.

The PCI standard was developed by several credit card firms, which began pushing merchants two years to begin work on meeting its 12 requirements.

Visa initially warned last December, and then reiterated this month, that merchants failing to comply by Oct. 1 will face higher commission fees and monthly fines of at least $25,000.

– JAIKUMAR VIJAYAN

# NOT ALL CRYSTAL BALLS ARE ROUND.



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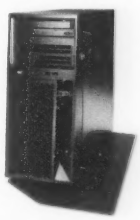

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SECURITY

# Stock Scam Highlights Growing Spam Threat

A company in Florida that operates convenience stores and wireless technology retail outlets was hit this month by a massive "pump-and-dump" scam, in which fraudsters used spam e-mail messages to drive up its stock price so they could then sell shares at a profit.

Scams such as the one directed at people who own stock in Fort Lauderdale, Fla.-based Prime Time Group Inc. now account for a significant percentage of all junk e-mail, according to security software vendor Sophos PLC.

"In 2005, less than 1% of spam was pump-and-dump," said Ron O'Brien, a senior security analyst at Sophos. "Last year, it was 25%. It's now fast approaching the numbers for prescription medicines and 'performance-enhancing' drugs."

O'Brien also claimed that there was a direct connection between the Prime Time spamming and widespread, ongoing virus attacks that began in early July, using malware-bearing messages purporting to be electronic greeting cards.

"The machines infected by those attacks are the same ones that were used to relay the [pump-and-dump] spam," O'Brien said. "[The attackers] set up the infrastructure for the spam more than a month before they started sending it."

> **"In 2005, less than 1% of spam was pump-and-dump. Last year, it was 25%.**
>
> **RON O'BRIEN**, ANALYST, SOPHOS PLC

The Prime Time mail surge broke single-day message-filtering records at several antispam vendors. Sophos first noticed it on Aug. 8. By the next morning, the company's spam traps had stopped more than half a billion messages, O'Brien said.

The bulk mailings appear to have contributed to a substantial increase in the trading of Prime Time stock and a 57% jump in its price. On the morning of Aug. 9, though, the bottom fell out. The stock price dropped to its previous level, and it went even lower last week.

Prime Time initially said it was ordering a comprehensive list of shareholders to try to identify possible short-sellers. On Aug. 10, the company issued another statement verifying that "several" spam messages had been sent to investors.

Other companies targeted in pump-and-dump scams have beefed up their online security and fraud-detection technologies. For example, TD Ameritrade Holding Corp. installed new antifraud tools and reconfigured its existing ones after some of its online brokerage customers were victimized by a pump-and-dump scam last year.

— *Gregg Keizer*

## Short Takes

Dell Inc. will restate its earnings for fiscal 2003 through the first quarter of 2007 after an internal audit found that corporate results had been changed to meet financial targets. Dell expects to reduce its reported profits by $50 million to $150 million.

Microsoft Corp. released nine software updates that fix 14 bugs in its operating system and applications. The company rated six of the updates "critical," meaning that attackers could easily exploit the flaws.

Qualcomm Inc.'s top lawyer, Lou Lupin, has resigned from the mobile technology firm following a string of court defeats. The move came just days after Qualcomm failed to reverse an import ban on new cell phones that use some of its chips.

IBM announced that it has signed an agreement with Sun Microsystems Inc. to offer Sun's Unix-based Solaris operating system on additional BladeCenter servers and System x x86-based systems.

WEB 2.0

# Dow Chemical to Launch Corporate Social Networks

**THE DOW CHEMICAL CO. last week said it plans to launch multiple social networks in December to help former employees, retirees and current workers communicate about full-time and contract job openings at the company.**

**"This is an acknowledgment that the labor market is tightening," said Kevin Small, leader of Midland, Mich.-based Dow's Global Resource Management Center. "We really need to come up with ways of addressing different generations in the workforce."**

**Small said that the so-called Dow Connect social networks will let "the overall Dow family – current and former employees – stay connected [and] stay current on what Dow is doing in**

**case they choose to return."**

**Each Dow Connect social network will be tailored to specific audiences, such as former employees interested in returning to the company, women looking to better balance work and family issues, and retired Dow employees seeking to work on short-term projects, Small said.**

**The networks will also let users "find out other pieces of information that would be difficult, if not impossible, to ascertain from an online jobs board," Small added.**

**The Dow social networks will be built and hosted by New York-based SelectMinds Inc.**

**– HEATHER HAVENSTEIN**

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SOFTWARE

# U.S. Panel Set to Say No To Open XML – for Now

The U.S. organization that is a delegate to the ISO international standards body likely will vote against approving Microsoft Corp.'s Office Open XML file format as a standard next month, after the proposal failed to get enough support from members of the group's board.

But a defeat of the Open XML application within ISO may be reversed next year, said Frank Farance, a consultant whose firm voted "no" in balloting completed Aug. 9 by the executive board of the Washington-based InterNational Committee for Information Technology Standards (INCITS).

Farance added that most INCITS members support the eventual ratification of Open XML, which Microsoft hopes to put on an even par with the ISO-approved Open Document Format for Office Applications.

"We think it will ultimately become an ISO standard," Farance said. "Let's just do it the right way."

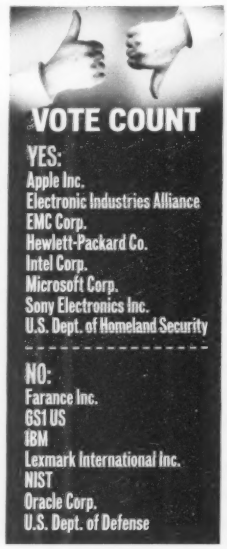
The INCITS board voted 8-7 in favor of Open XML, with one abstention. But the proposal needed 10 "yes" votes — two-thirds of the ballots cast — to pass.

Farance said concerns centered around some relatively minor technical details and poorly written or ambiguous wording in the 6,000-page application submitted by the Ecma International standards group, which gave Open XML its stamp of approval last year.

Microsoft said INCITS hasn't made a formal decision on the proposal and may not do so until the Sept. 2 deadline for submitting a vote to ISO.

But the chance that the group will change its position is only "one in 100," said Farance, an INCITS member for the past 23 years.

— *Eric Lai*




BETWEEN THE LINES

*By John Klossner*

## BENCHMARKS LAST WEEK

Citrix Systems Inc. said it is buying software vendor XenSource Inc. in a deal that will propel Citrix into the server virtualization market.

IBM and PriceWaterhouseCoopers separately agreed to pay a total of $5.3 million to settle charges that they and other vendors made improper payments to one another while working on federal IT contracts.

TWO YEARS AGO: Less than a week after Microsoft Corp. disclosed a security hole in a plug-and-play component of Windows 2000, hackers unleashed a slew of worms targeting it.

# Global Dispatches

## British Ministry Delays IT Project

**LONDON – The U.K. Ministry of Justice last week said the rollout of its Libra case management computer system to 370 Magistrates' Courts is now expected to start late next year. This is the latest in a series of delays for the troubled project.**

**In a report on the state of the effort, Alex Allan, permanent secretary of the ministry, blamed "a number of external factors" for the delay, including supplier problems and the need to rewrite some applications.**

**Development of the system began in 1998, and an earlier effort to roll it out was halted in February.**

**The estimated cost of the system, set at £146 million ($290 million U.S.) in 1998, is now £950 million ($1.9 billion U.S.), according to the ministry.**

**Tash Shifrin,**
*Computerworld UK*

## Stolen U.K. Server Held Police Data

**SEVENOAKS, ENGLAND – A database containing administrative data and case files from multiple U.K. police forces has been stolen from a company that carries out forensic investigations for police departments across the U.K.**

**Forensic Telecommunications Services Ltd. acknowledged last week that the files were stored on a server stolen from its headquarters here during a break-in on Aug. 7.**

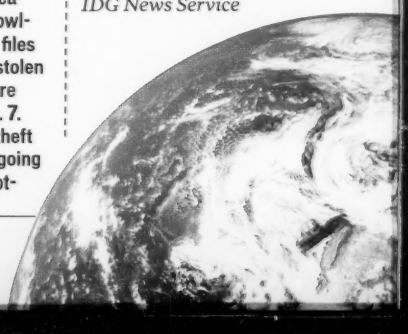
**The company said the theft will not "compromise ongoing police operations." A Scotland Yard spokesman added that the theft is not likely to "have any serious impact on current or historic investigations."**

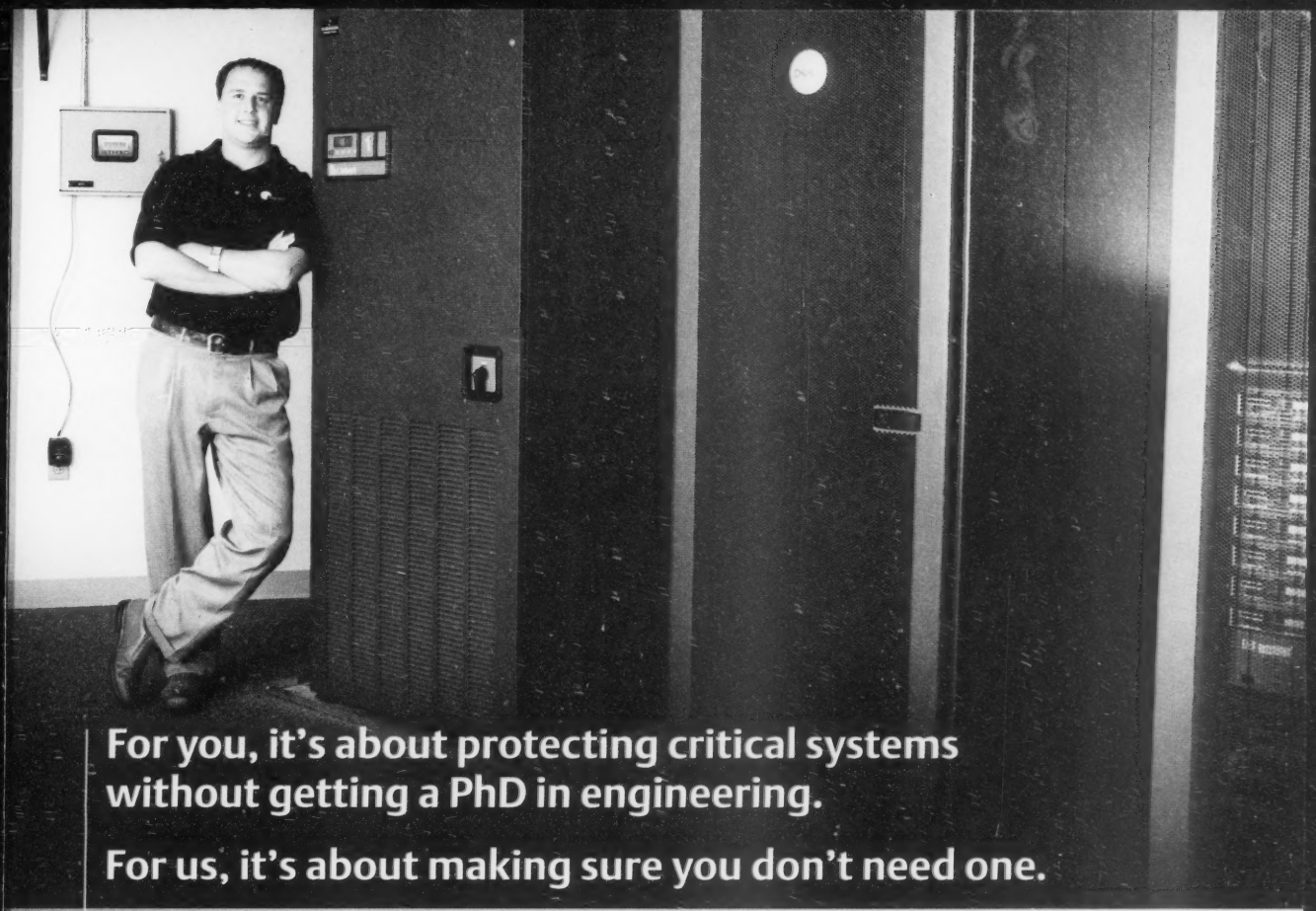
**Tash Shifrin,**
*Computerworld UK*

**BRIEFLY NOTED**

**Reuters Group PLC has awarded a 10-year, £500 million ($991 million U.S.) outsourcing contract to Fujitsu Ltd. The agreement calls for Tokyo-based Fujitsu to run the bulk of London-based Reuters' internal IT operation from facilities in Lisbon and Kuala Lumpur.**

**Jeremy Kirk and Martyn Williams,**
*IDG News Service*





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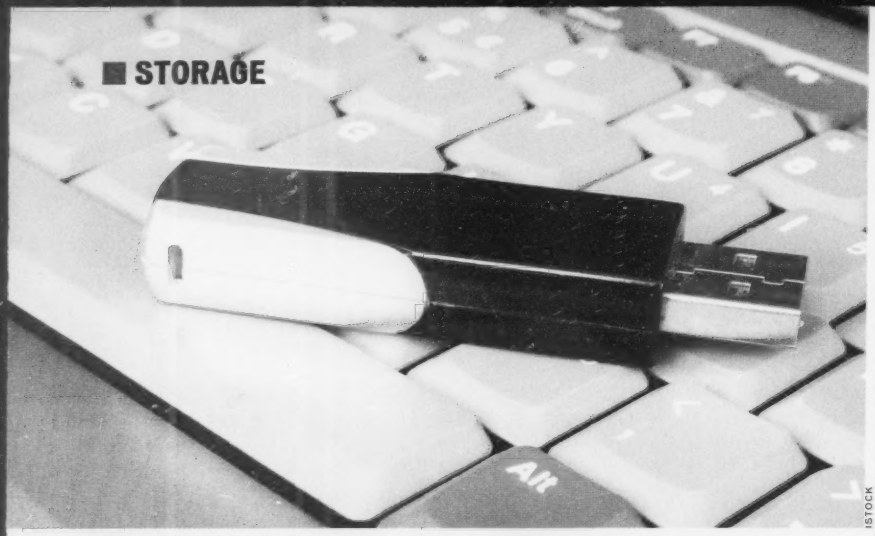


ISTOCK

# Portable Devices Pose Growing IT Security Threat

## Managers scrambling to manage flood of storage systems. By Brian Fonseca

Fabiana Gower considered some unconventional methods to prevent data losses when portable storage devices began appearing in her company's IT environment about three years ago.

"I stopped just short of Super Glue," said Gower, vice president of information systems at Martin, Fletcher, an Irving, Texas-based medical staffing firm.

"I wasn't able to find a way to lock USB ports so that they are inaccessible to employees short of going to a thin-client environment, which would have meant [an investment of] hundreds of thousands of dollars," she added.

Increasing numbers of IT and security managers are facing similar pressures to control access to corporate information stored on portable storage devices that are used both with and without the blessing of IT managers, according to experts.

Just this summer, the U.S. Department of Veterans Affairs issued a directive requiring that its employees, contractors and business partners use encryption or other means to protect data stored on all drives, including portable devices.

> **"I wasn't able to find a way to lock USB ports down so that they are inaccessible to employees short of going to a thin-client environment, which would have meant [an investment of] hundreds of thousands of dollars.**
>
> **FABIANA GOWER,** VICE PRESIDENT OF INFORMATION SYSTEMS, MARTIN, FLETCHER

The edict follows the VA's loss of two drives over the past 15 months in incidents that exposed personal information of tens of millions of veterans and others.

In a statement to *Computerworld* last week, Bob Howard, CIO and assistant secretary for information and technology at the agency, said that the VA is also in the process of acquiring encrypted thumb drives and applying encryption to other devices and storage media. The process will be completed by the end of 2007, he said.

Martin, Fletcher eventually deployed PatchLink Corp.'s Sanctuary Device Control software on the 150 PCs on the company's network to curb data breaches via portable storage devices, Gower said.

The software from Scottsdale, Ariz.-based PatchLink enables IT personnel to issue and manage permissions based on employee rank. It can also be used to compile detailed audit reports and to encrypt content as it travels from corporate networks to portable devices, she said.

"For IT administrators, our job is not just setting up a computer for an employee to do their job. Our job is to safeguard the information of a company and make it accessible to those who need it and unavailable to those who don't," Gower said.

Businesses will struggle to keep their networks secure as long as they lack IT control over tiny storage devices connected to their systems, said Larry Ponemon, chairman of Traverse City, Mich.-based Ponemon Institute LLC.

"Attackers today aren't just college-aged kids sitting in their room at night trying to get into government systems. A lot of these guys are very sophisticated cybercriminals looking to take advantage of companies that don't have the best control over their network and devices," said Ponemon.

According to a Ponemon Institute security study, 59% of 1,035 IT security,

*Continued on page 16*

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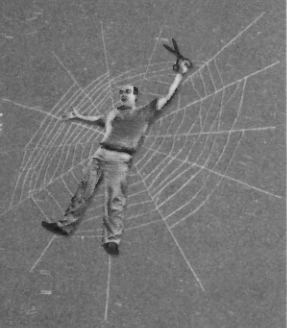
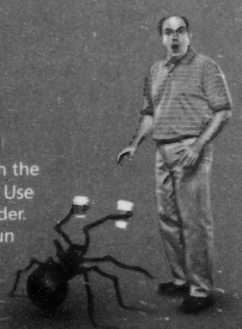
**2.** Use proven methods.
Spiders are best handled the old-fashioned way: by crushing, smooshing, etc. Freakishly huge Spiders are no different. Grab a rolled-up newspaper, or wad up a handful of toilet paper, and have at it. Unlike normal spiders, the big ones will clog your sink, so show caution.

**3.** Use your superior intellect.
Spiders are crafty hunters and one of nature's most efficient predators. Remember though, you are a human, and while you may lack razor-sharp pincer jaws, you have opposable thumbs.



**4.** Turn strength into weakness.
Eight legs are great for scurrying over sticky webs. In an office setting, they can be a liability. Trip the Spider up with cables, or masking tape — whatever you have at hand. Once they're tangled, push them over and run like heck.



**5.** Put them to work.
You've used your intellect to vanquish the Spider; why not take it a step further? Use positive reinforcement to train the Spider. Get it to help out around the office, run errands, make coffee and copies, etc.

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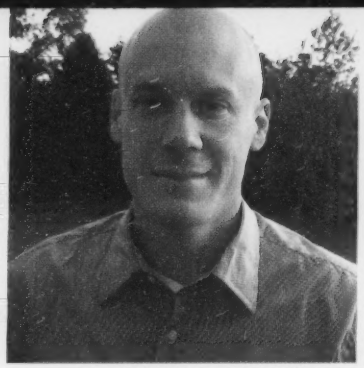
# Colleges Strain to Provide Security In Open Setting

**IT MANAGERS** at colleges and universities are grappling with the problem of finding ways to better secure removable storage media in an environment that encourages information sharing.

Jason Pufahl, information security team lead for IT services at the University of Connecticut, said that the needs of students and faculty prevent universities from implementing mandates that prohibit the use of unapproved portable storage media.

Such mandates may be common in the corporate world, but "we don't have the flexibility to simply say all inbound traffic is locked down or we're going to allow outbound traffic on only specific ports," Pufahl said. "We just can't do that. We have to try to provide security when leaving things open, which is really difficult."



UConn's Jason Pufahl says the university doesn't have the option of requiring all inbound traffic to be locked down.

UConn has had success scanning network traffic for viruses and malware using Fortigate-5000 technology from Sunnyvale, Calif.-based Fortinet Inc., though Pufahl acknowledges that it has proven ineffective against devices such as USB drives, iPods or iPhones.

In recent months, some universities have been hit by incidents of lost or stolen flash memory and storage devices.

In June, for example, Grand Valley State University was forced to notify 3,000 students of a stolen Zip drive.

The university is currently examining password- and encryption-protected USB drives from SanDisk Corp. and Kingston Technology Co., said John Klein, associate director of academic services at the Allendale, Mich., school.

Klein said schools must educate students about the dangers of using unprotected storage devices and the associated risks of losing confidential data.

"It's not their home network anymore, where they are safe and cozy and warm," he said. "It's a campus network, where virtually any computer via a hacker is viewable and can be attacked."

In May, a professor at Bowling Green State University in Ohio lost a flash drive containing Social Security numbers of 199 former students.

The university is currently engaged in an encryption project designed to safeguard computers across campus, said a spokeswoman. "Policies are being looked at again to see what else we could be doing," she added. "These portable storage devices are just so convenient."

– BRIAN FONSECA

*Continued from page 14*

data protection and privacy practitioners surveyed through June said their organizations currently lack the ability to detect lost or stolen USB memory sticks containing unprotected confidential information.

Ponemon recommended that IT managers step up their database scanning methods, do a better job of managing identity data and apply encryption techniques even if such moves harm system performance.

Jason Pufahl, information security team lead for IT services at the University of Connecticut in Storrs, is evaluating several portable media encryption products, including the open-source TrueCrypt tool from the TrueCrypt Foundation.

Pufahl noted that many students are either ambivalent or unaware of the high risk for data loss whenever they share ministorage devices. (See story above.)

"A lot of people don't even know what they're doing is inappropriate," said Pufahl. "A basic USB memory stick has up to 8GB — that's a ton of space, and you can put them anywhere. They're really dangerous."

Gabanksi: The city of Lake Forest, Ill., found a host of unauthorized devices linked to its network.

Jeff Moss, organizer of the DefCon hacking convention, suggested that IT managers approach TrueCrypt with caution because it runs only on Microsoft Windows-based machines.

Moss said the lack of an industry standard for encrypting data on portable drives is hampering efforts to boost the security of such devices.

"Something definitely needs to be done because these devices definitely get lost or stolen or [are] given to friends," said Moss.

Joe Gabanksi, network administrator for the city of Lake Forest, Ill., said municipal IT personnel first noticed a problem with portable devices after distributing removable storage devices to employees about two years ago.

Officials hoped to help employees more easily transport data, but found after a scan of the IT environment that a host of unauthorized devices were also linked to the network. At that point, Gabanksi said, the city's IT managers realized that the unofficial policy of connectivity-at-will needed to tightened.

"We found considerably more activity on the network than we had ever anticipated," he said. "We had the iPod, digital music players [and] universal flash drives. We were shocked to see how much end users had already used them."

Gabanksi said the discovery spurred concerns over how to monitor and manage data coming in and out of his environment. Thus, the city moved to require that users register any devices they wish to connect to the corporate network.

Over the past year or so, the city also installed PatchLink's Device Control and Device Scanner tools to centrally manage and encrypt those devices.

"The thing that really moved us was to see that the companies and the agencies that did lose data [through portable storage devices] made the news. We didn't want to be a part of that," Gabanksi said. ■

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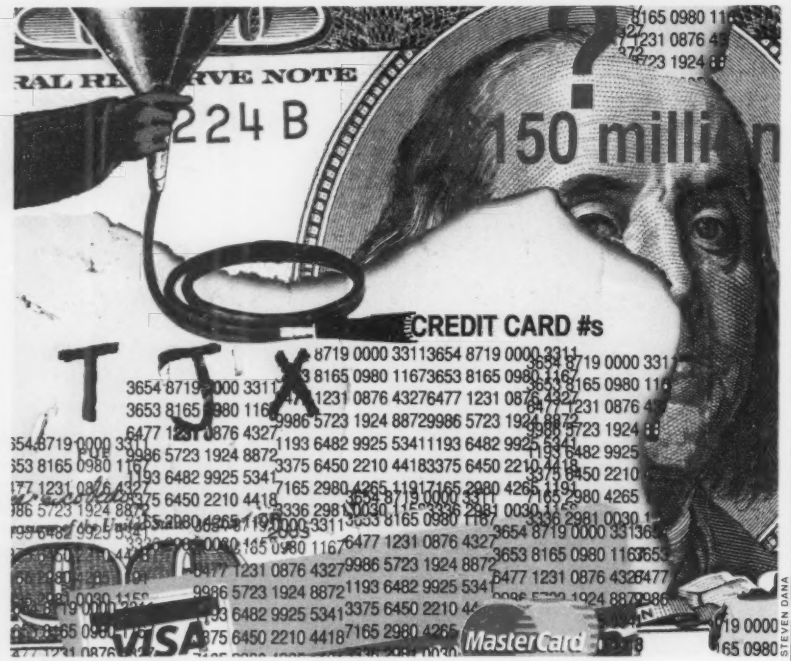
# TJX Says Breach Costs May Exceed $150 Million

## Analysts contend latest estimate by retailer is woefully low. By Jaikumar Vijayan




The TJX Companies Inc. last week reported that losses from a massive data breach it disclosed in January could surpass $150 million, which analysts say makes the crime the costliest such incident to date.

The Framingham, Mass.-based discount retailer in March acknowledged that 45.6 million customer credit and debit card numbers were stolen from one of its systems over a period of more than 18 months.

"We have continued to learn more about the computer intrusion(s) and are now able to estimate the company's liability," said Carol Meyrowitz, president and CEO of TJX, in a statement.

Last week, TJX reported a charge of $118 million in its second quarter, which ended July 28, to cover potential costs related to the breach. The company said it expects to incur additional noncash charges of $21 million during its 2009 fiscal year.

The new charges are in addition to the $25 million set aside in the previous two quarters to cover breach costs.

Meyrowitz noted that the company "over the past months [has] worked diligently to further strengthen the security of our computer systems."

Deven Bhatt, director of corporate security at Arlington, Va.-based Airlines Reporting Corp., said the rising costs of the TJX breach should help him convey the importance of heavy security investments to top management at his firm, which provides ticket distribution and settlement services to more than 145 air and rail carriers.

> **"It definitely helps security guys like me to make a solid business case. It's a lot cheaper to protect than to do cleanup.**
>
> **DEVEN BHATT,** DIRECTOR OF CORPORATE SECURITY, AIRLINES REPORTING CORP.

Bhatt said that while he was not surprised by TJX's projections of its breach-related costs, top executives at Airlines Reporting were amazed when he showed them TJX's Securities and Exchange Commission filings.

"They definitely were shocked," Bhatt said. "It definitely helps security guys like me to make a solid business case. It's a lot cheaper to protect than to do cleanup."

Avivah Litan, an analyst at Stamford, Conn.-based Gartner Inc., said the costs of the TJX breach are likely to increase significantly.

"They have incurred about a third to a half of the costs they could end up having to pay," Litan estimated. "They are facing potentially expensive litigation. There's never been anything this big in terms of the breach itself and its cost implications."

Litan predicted that the breach will ultimately cost TJX about $500 million.

Lawsuits related to the breach have already been filed against TJX by the Massachusetts Bankers Association, the Arkansas Carpenters Pension Fund and the Merchant Law Group.

Several more states are actively contemplating lawsuits against the retailer, according to an analyst who is helping one state with such litigation.

Another analyst, Khalid Kark at Forrester Research Inc., also predicted that the total costs will far exceed the TJX estimate. "The first-year costs are significant. But we tend to underestimate the costs over time," especially from lawsuits, Kark said.

He said the final costs to TJX could approach $1 billion.

Despite the charges, TJX reported strong second-quarter results, with sales increasing by 9% to $4.3 billion.

Even so, the scope of the breach costs should convince companies that are "on the fence" to invest heavily on security fixes, Litan said.

"Strengthening data security," she said, "is much less expensive than responding to a security breach." ■

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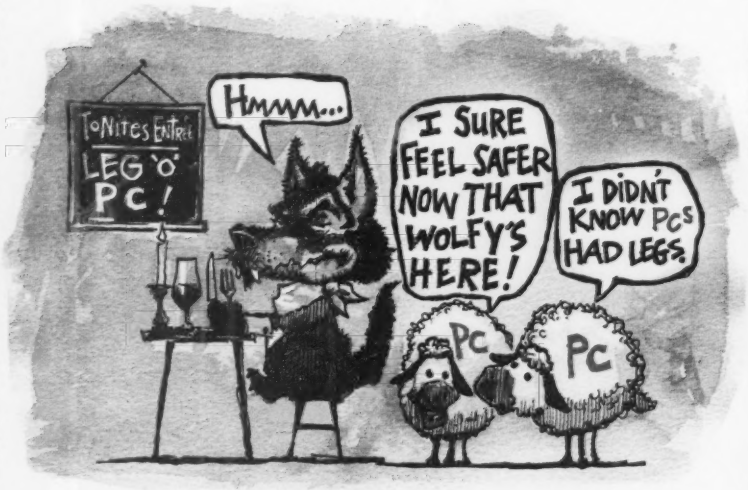
# On the Mark

**HOT TRENDS ■ NEW PRODUCT NEWS ■ INDUSTRY BUZZ BY MARK HALL**




MATTHEW FAULKNER

## Bot Wolves Defend Flocks

AMRIT WILLIAMS has been observing an ironic trend in security threats: Botnet herders are protecting the PCs they control from other malware. The chief technology officer at BigFix Inc. in Emeryville, Calif., explains that the malware that is spewing across the Internet is so pervasive that some hackers must defend their ill-gotten, compromised machines from attack. How pervasive is that? IDC estimates that malware writers release 450 new strains of viruses, Trojan horses and other apps of their ilk each month. And the clueless end users who let the original malware in aren't likely to do anything to keep a competing virus out. "Herders don't want you to know that you're compromised, so they need to protect you from less sophisticated malware" that might raise your suspicions and prod you to install software to protect against that malware, says Williams. BigFix sells security tools to manage up to hundreds of thousands of mobile and fixed devices. Williams says the company's agent-based software works with any operating system and can apply centralized policies across myriad devices.

**Williams: Hackers have to defend malware-laced machines.**

### Web Application Vulnerabilities on Rise

After an analysis of "reported vulnerabilities, Web application probes, attack statistics" and other data, Cenzic Inc. concluded that the percentage of online vulnerabilities attributable to security holes in applications jumped to 72% in Q2 this year from 67% in Q1. Security holes attributable to network vulnerabilities fell to 28% from 33%. Mandeep Khera, vice president of marketing at Santa Clara, Calif.-based Cenzic, asserts that Web application developers continue to give short shrift to security in part because they are not taught how to write secure programs in school, and "they barely have the time to get all the functionality in their application." Cenzic plans to release Version 5 of its risk management tool, Hailstorm, next week. The upgrade will include a dashboard feature so managers can view the state of security testing for each online application, whether it be in development or production. Pricing for Hailstorm starts at $5,000.

**100M**
**Number of online transactional apps, Cenzic estimates.**

### Hear Me. See Me. Search Me.

Factiva Inc., a wholly owned subsidiary of New York-based Dow Jones & Co. (soon to join Rupert Murdoch's News Corp. family), has released a beta version of its audiovisual search tool. The new offering, Factiva Search 2.0, lets you paw through business-oriented broadcast news sources, such as National Public Radio and CNN, to locate information. According to Factiva's chief product officer, Dennis Cahill, with the company's new service, your results will land within 20 seconds of the time your search terms were used in, say, a podcast or a network news story, which should save researchers significant time. The Factiva tool uses a variety of techniques, including nearest-neighbor linguistic analysis, to home in on sought-after audio snippets. Boolean queries can be used for more complex searches, Cahill says. He notes that the Factiva service has more than 30 years of historical data in its archives, making it, he claims, essential to organizations involved in mergers or acquisitions. Cahill says Factiva offers an array of analytical tools along with the information. For example, a researcher could "get everything on News Corp. and mergers and acquisitions for the past five years," should that be of interest. Subscriptions start as low as $69 per year. ■

**Add audiovisual searches to your info hunting, Cahill suggests.**

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■ THE GRILL

# John W. Thompson

## **Symantec's** CEO talks about new paradigms in **security**, integrating a $13 billion **merger** and taking **Microsoft** to court.

**John W. Thompson** *is the chairman and CEO of Symantec Corp. In late 2004, he spearheaded one of the largest IT mergers ever undertaken, joining Symantec and Veritas Software Corp. in a $13.5 billion deal.*

**Is a mobile employee carrying data a security professional's worst nightmare?** People are the new perimeter. You can't define the perimeter based upon the firewall boundaries. You define the perimeter based upon where the individual is. Therefore, that device has to have adequate protection; that individual has to be trained to understand appropriate security protocols and the steps he must take.

Now, I can put technology on a device that limits USB port access, so if I put a thumb drive in there, I won't allow data to be transferred. Or I can install data-leakage technology, so if files of a certain type or certain size get transported out, then I know about that, and I can have a conversation with the user about why that occurred. But we have to be smarter about implementing a policy-based approach toward security — not just throwing security technologies everywhere. Otherwise, it gets too complex and, frankly, too expensive for people to manage.

**The nature of threats has changed dramatically, from notoriety attacks a few years ago like Melissa and "I Love You" to sophisticated attacks like ID theft. Do customers understand that?** There is a gap, particularly in the consumer space, between what people have done to protect themselves and what they need to do to protect themselves. And I

*Continued on page 26*

## Dossier

**Name:** John W. Thompson

**Title:** Chairman and CEO

**Organization:** Symantec Corp.

**Location:** Cupertino, Calif.

**The most interesting thing people don't know about him:** "I'm the most boring person in the world. I have a few things that I love, but perhaps one I enjoy the most is cooking, because of the instant gratification that it gives you."

**Role models:** "My mom and dad."

**Philosophy in a nutshell:** "Play to win. Coming in second is losing."

**Ask him to do anything but** "make the same decision twice. It's a waste of time if you have to iterate through the same issue over and over again. I think we should make fact-based decisions and move on."

**In high school he was:** "A rabble-rouser. Life requires balance, and I tried to balance the educational experience with a little bit of fun."

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**"Antivirus and antispy and antispam were about protecting the device. That's necessary, but no longer sufficient.**

*Continued from page 24*

think we, as the providers of [security] technology, have to make the technology easier for them to use — less intrusive, if you will. I think we have to move the paradigm from protecting the device to protecting interactions.

**Interactions between people, or do you mean a user's personal online experience?** People want to know that the Web site that I'm going to in actuality is the site I wanted to go to, that I haven't been diverted off to some phishing site that's going to scam me one way or another. Many of the corporations that interact with consumers want to know that when I interact with you online, you are who you say you are. So it's more about shifting the paradigm in these technologies to user-information-based protection as opposed to device protection. Antivirus and antispy and antispam were about protecting the device. That's necessary, but no longer sufficient.

**Where do you see corporate security moving?** I think that over the next few years, you are going to see security shift from protecting the device and learning about individual users to [thinking about] the policies that I deploy around user interactions and information protection, and having policy management techniques and technologies that give me warnings or block access or activity when it doesn't conform to what I had prescribed.

**Do you foresee Veritas executives playing a bigger role in Symantec leadership?** If you look at the guys that report to me — Greg Hughes, who runs our services business, and Kris Hagerman, who runs the data center management business — both came from Veritas. There are other members of the team that have come on since then.

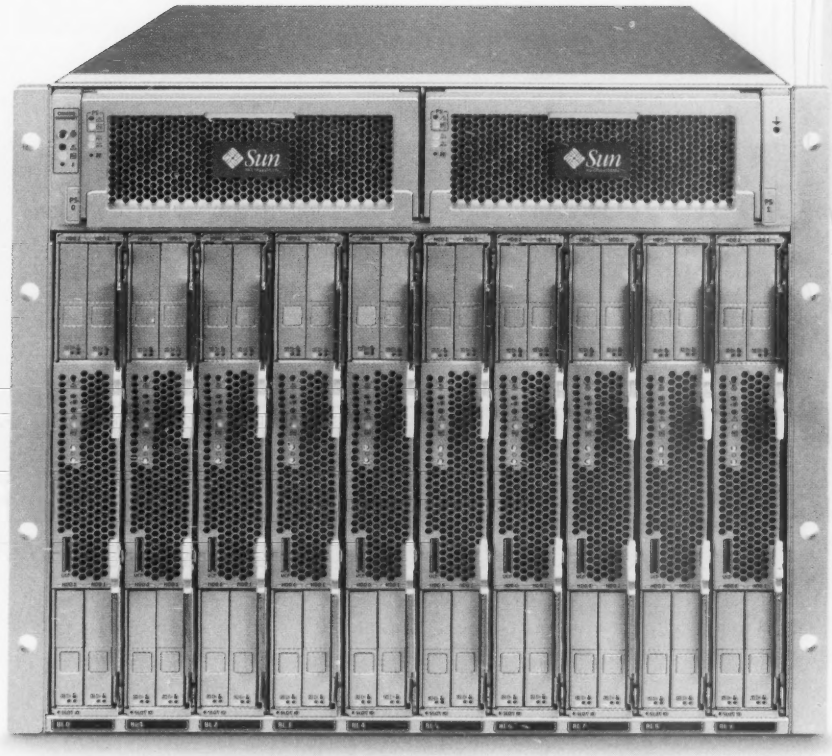
I'm less interested in where you came from and more interested in what you know and what you can contribute. I think that's the way we have to optimize our senior team, not based upon whether they came from Veritas, Oracle or somewhere else, but what can you contribute and how does that help the company move forward.

**Given the at times heavy criticism, has the merger met your expectations?** Clearly, we did not anticipate that the security markets for us would slow down quite the way that they did. But if I looked at what we outlined as our integration plan, we pretty much hit all those major milestones. It has just been one bear of a transaction to integrate. Fortunately, we are 80% to 90% done. We are well beyond the tough phase of the transformation of Symantec. That's why we felt confident enough to acquire Altiris back in April. The software industry is an obvious state of consolidation, and we're not just going to sit on the sidelines and let it consolidate around us.

**Is the software sandbox big enough for Symantec and Microsoft to play in?** The lawsuit [against Microsoft] is still active. The courts will ultimately decide what damages we are due for the breaches of our IP that Microsoft executed. It's hard in the software business not to compete with Microsoft because they have their tentacles extended everywhere. So it's unlikely that anyone who has a desire to grow and prosper isn't going to bump into Microsoft somewhere, and that's certainly been the case for us.

They decided they wanted to be in the security business. Well, gee, that's interesting, but we think we do a pretty good job there. We decided we wanted to be in the data protection business. Well, after we decided that, they decided they did too. So now, all of a sudden, they want to be in the integrated endpoint management business after we decided that was where we wanted to go. It's just a natural course of competition in the industry, and may the best team win.

— *Interview by* **Brian Fonseca**

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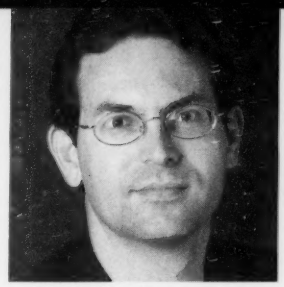
■ OPINION

John D. Halamka

# Call Me in Tokyo – If You Can



I THOUGHT MY needs were simple: mobile e-mail and voice communications from one device that works in every country on the planet. By the end of summer, I'll have been in the U.S., Austria, the Czech Republic, Australia and Japan. Turns out my needs weren't so simple after all.

As a longtime BlackBerry user, I've roamed throughout the U.S. and Europe without problems. I figured a BlackBerry "world phone" would do the job in Japan. No such luck. Thus began my journey through the lexicon of mobile communications.

Turning to Wikipedia, I found that the Global System for Mobile Communications (GSM) is a second-generation (2G) technology used by over 2 billion people. It has four major bands. GSM-900 and GSM-1800 are used in Europe, the Middle East, Africa and most of Asia. GSM-850 and GSM-1900 are used in the U.S., Canada and other countries in the Americas. It's the system used by AT&T/Cingular.

Code Division Multiple Access (CDMA) is a 2G technology used by over 350 million people in the U.S., Canada and Asia. It's the system of choice for Verizon.

The Universal Mobile Telecommunications System (UMTS) is a 3G technology used by over 100 million people in 48 countries, mainly in Western Europe and Asia.

Once I mastered the alphabet soup, I set out to find a voice and data device that provided the coverage I needed. Of course, most devices are locked to a carrier, so you need to shop for a device/carrier combination. My experience in the U.S. is that CDMA/Verizon service provides great call quality everywhere. GSM/AT&T service may work in Paris and Stockholm, but don't try to complete a call in Boston.

Time to check out the phones. How about one of those cool new iPhones? It's a quad-band GSM phone (850, 900, 1800 and 1900), and AT&T is the only carrier. This means great service in Europe and China, dropped calls across the U.S., and no Japan. Close.

**■ One device that works in every country? It's not as easy as it sounds.**

How about the BlackBerry? The 8830 sounded great — full CDMA coverage by Verizon in the U.S. on the high-quality CDMA200/Evolution Data Optimized networks, plus full roaming on the 900/1,800-MHz GSM networks in Europe and most of Asia. No Japan, however. Also, it has a matchstick mouse rather than the track wheel that made the BlackBerry a killer e-mail device.

Other BlackBerries, such as the 8800, are quad-band GSM like the iPhone, with the same coverage issues.

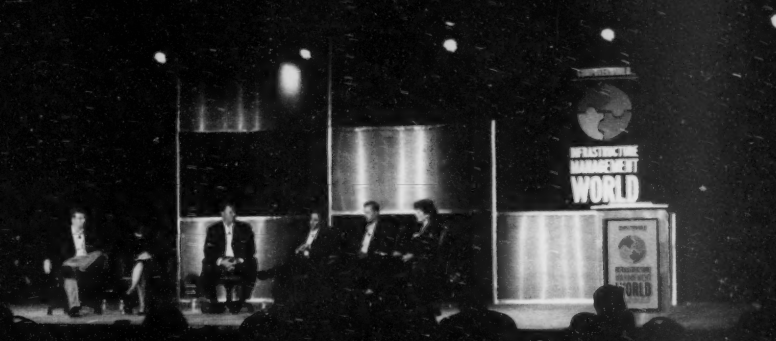
But wait! There's an obscure device from BlackBerry called the 8707G. It's quad-band GSM plus 2,100-MHz UMTS, so it works everywhere. And you can feel free to use whatever local carrier is inexpensive where you're traveling. Because it is unlocked, no carrier wants to sell it to you. You have to buy it from Research In Motion.

Then there's the Palm Treo 750, with quad-band GSM plus UMTS. It's a Windows Mobile device sold by AT&T that comes with a little stylus.

I purchased both a BlackBerry 8707G and a Palm Treo 750. Both worked in the U.S. Both worked the moment I landed in Tokyo. Both worked in Europe. The winner — the BlackBerry. Just try doing 600 e-mails a day with a little stylus on the Treo's 2-by-2-in. Windows Mobile screen.

After weeks of searching, I have a single voice/data device that works on every square inch of the planet. And it has my beloved thumb wheel! Makes you wonder why device manufacturers and carriers make this so difficult. ■

**John D. Halamka** *is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. You can contact him at jhalamka@caregroup.harvard.edu.*

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# Brainy TECH

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These **10 technologies** could **extend** human capabilities, take everyday devices to **new levels** and **improve** how we live and work.

## Wearable Gadgetry

ELEKSEN GROUP PLC

### Sideshow Wearable Display Module

**WOW FACTOR** Schedules and recent e-mails are viewed through a fabric-embedded module

**By Robert L. Mitchell**

IT STARTED as an idea for making more lifelike puppets for the British TV show *Spitting Image*. Four years later, Eleksen Group PLC is hoping that its interactive textile technology will form the foundation for a new generation of wash-and-wear computer control and display devices.

The centerpiece of the technology is ElekTex, a fabric-based, pressure-sensitive control interface that can be integrated into jackets, bags and other textile products. The technology is already used as a remote control for iPods and cell phones in backpacks and coats. At this year's Consumer Electronics Show in Las Vegas, Eleksen presented its latest design concept, which integrates ElekTex fabric controls with an LCD display that can interact with Windows Vista's Sideshow feature. The latter exports information from a Vista laptop to a secondary display. Mini-applications, or "gadgets," written for Sideshow can then wirelessly deliver e-mail, alerts or other updates to the remote screen even if the laptop remains in its case and turned off. Fabric-based controls and embedded control electronics interact with the

display. Iver Heath, England-based Eleksen is also planning support for secondary displays on the Macintosh.

Initial implementations of ElekTex will likely be integrated into laptop bags with embedded button controls and small color LCD displays, says John Collins, vice president of marketing and business development at Eleksen. However, Collins envisions an eventual move to flexible displays based on color organic LED technology. That would allow the control and display surfaces to be embedded on any fabric surface, including a shirt. "Imagine receiving critical information from enterprise information systems on your sleeve," says Vassilis Seferidis, vice president of product management.

ElekTex fabrics are constructed from woven layers of nylon and carbon-impregnated nylon that's not only bendable, but also washable. Because of the nature of the material, it can be sewed, glued or even heat-welded into other fabrics. Mark Treger, national sales manager at Goodhope Bags Inc. in Chino, Calif., has embedded ElekTex sensors into backpacks to control iPods. "You can just sew through it. It just works," he says. The one limitation is cost. Collins estimates that a laptop bag with the technology would cost about $200. But Treger says the cost of the ElekTex technology has already dropped by 50% in the past year. He sells a fabric keyboard for use with the BlackBerry that sold for $169 last year. Today, it's priced at under $130, and by the holiday season, he says, retailers will be selling them for about $80.

The technology and the manufacturing process took years to perfect, says Collins — and that gives the company a leg up on any competition. "Their strength is understanding how to do the wiring and connections and create control surfaces with the right amount of tactile feedback," says Leslie Fiering, an analyst at Gartner Inc.

"The knitted, woven materials allow us to get x, y and z coordinates," says Collins. Currently, Eleksen is producing button and scroll controls. Next, it plans to support gestures across the control surface, simulating a mouse or fabric-based touch pad. "It's a matrix arrangement, similar to what you'd find on touch-screen displays," Collins says.

Seferidis expects viable bendable displays to be available in about two years. But he is working with vendors to make displays do more than just bend. "Our work will be to make them washable," he says.

The Sideshow capability is "pretty cool," says Fiering, but even more interesting will be what designers can dream up if the technology catches on. The most fascinating applications, she says, haven't even been thought of yet. ■

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**» ElekTex, a fabric-based, pressure-sensitive control interface, can be integrated into jackets and bags.**

PHOTOGRAPHY BY WEBB CHAPPELL

# Identity Passport

SYMANTEC CORP.

## Norton Identity Client

**WOW FACTOR** If widely adopted, this identity system could ensure security of Web transactions

**By Drew Robb**

INTERNET anonymity is great in some ways, but it doesn't make for good business relationships. To make it easier for both companies and consumers to confidently and securely interact electronically, Symantec Corp. has developed Identity Client.

Demonstrated in January at the RSA Conference in San Francisco, Identity Client is slated for first-phase release next month as part of the 2008 Norton product line. It provides a common interface for users to manage the different identities, passwords and protocols they use to access services over the Web.

"A business should be able to identify key attributes about whom they are doing business with online," says Tim Brown, Symantec's senior director of architecture and strategy. "It is also important that a user should be able to know certain things about a business before deciding to engage in a transaction."

"The objective of the Identity Client is to support as many different protocols and authentication methods as possible," he says. "The goal is to make the user's life as simple as possible while providing them protection and tools necessary to safely conduct business online."

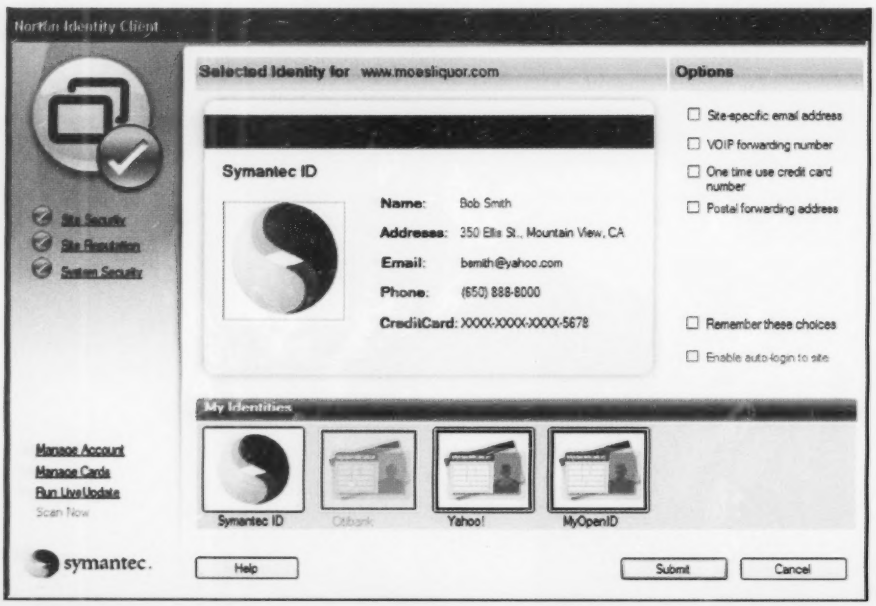
The initial product will allow a consumer to create a validated identity. Later enhancements will support features such as one-time credit cards, identity verification, identity validation and identity scoring.

Staffers from Symantec Research Labs, the office of the chief technology officer and the consumer business unit began work on the project in mid-2006. Architects Brian Hernacki and Sourabh Satish worked on shaping the technology, and product manager Gowri Grewal analyzed the market. They were joined later by developers from the Norton Confidential team in the consumer business unit, including Abhay Kulkarni, Goving Salinas and Anne Yeh.

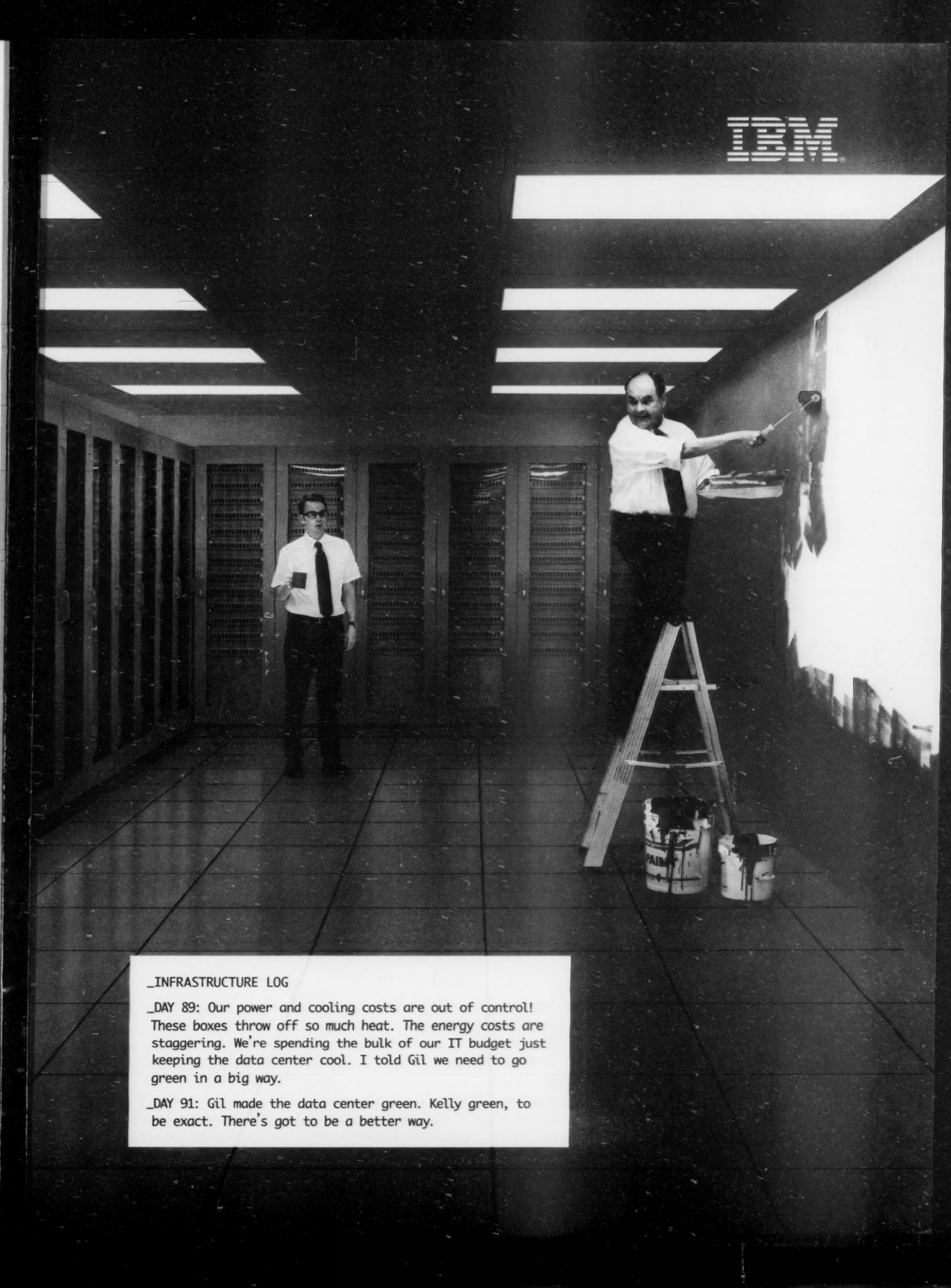
Andrew Jaquith, an analyst at Yankee Group Research Inc. in Boston, says Identity Client was designed to "be the Switzerland" of identity management, working with other identity verification protocols such as Microsoft Corp.'s CardSpace, the Liberty Alliance Project and OpenID, so users can manage their verified identities from one place.

"Today, we see only a small portion of the potential use of the Internet because of the general, and well-founded, lack of confidence that the Internet can be used securely and safely for consumer-facing applications," says Peter Christy, an analyst at Internet Research Group in Los Altos, Calif.

"This kind of solution, something that materially improves confidence in using the Internet, will have immediate return for any company with a direct consumer-facing aspect," says Christy. "There are no effective solutions in place today." ■




**Robb** *is a* Computerworld *contributing writer.*




_INFRASTRUCTURE LOG

_DAY 89: Our power and cooling costs are out of control! These boxes throw off so much heat. The energy costs are staggering. We're spending the bulk of our IT budget just keeping the data center cool. I told Gil we need to go green in a big way.

_DAY 91: Gil made the data center green. Kelly green, to be exact. There's got to be a better way.

# Eye Commander

STANFORD UNIVERSITY

## EyePoint

**WOW FACTOR** Makes eye gaze a viable alternative to the mouse for tasks like Web surfing

**By Drew Robb**

INCREASED computing power doesn't just make for better graphics; it opens up new ways to interact with computers. Take, for example, the EyePoint system developed by Stanford University doctoral researcher Manu Kumar.

EyePoint uses a four-step process that incorporates a user's hands and eyes to increase accuracy and eliminate the false positives that come from using eye movements alone. Plus, the technique brings a more natural way of interaction to a broader band of users.

"Using gaze-based interaction techniques makes the system appear to be more intelligent and intuitive to use," says Kumar. "Several users have reported that it often felt like the system was reading their mind."

Here's how it works: While looking at a screen, the user presses a hot key on the keyboard, magnifying the area being viewed. The user then looks at the link within the enlarged area and releases the hot key, thereby activating the link.

Eye tracking, which has been around for decades, typically uses infrared devices embedded into a headset or a monitor frame. The devices track the centers of the user's pupils and then calculate which part of the screen the user is viewing.

This method, however, has been plagued by errors, limiting its use primarily to people with disabilities that prevent using a keyboard and mouse.

Eye trackers are accurate to about 1 degree of visual angle. When looking at a 1,280-by-1,024-pixel, 96-dpi screen at a distance of 20 inches, this equates to a 33-pixel spread in any direction from where the user is looking. That's not accurate enough to pinpoint a link.

"What is really exciting is that the processing power of today's computers is completely changing the kinds of things we can use for computer interfaces," says Ted Selker, associate professor at the MIT Media and Arts Technology Laboratory and director of the Context Aware Computing Lab. "Things like eye tracking are using channels of communication that literally were unavailable to interface designers even five years ago."

"[Kumar's] approach — using eye movement in a subtle, lightweight way, rather than as a direct mouse substitute — is exactly the right way to go," says Robert Jacob, a professor of computer science at Tufts University in Medford, Mass.

Selker says eye tracking might become a standard computer interface within the next five years. For now, the primary obstacle is the high cost of eye-tracking hardware, although mass adoption of the technology would drive those costs down. ■

# Observation Grid

UNIVERSITY OF SOUTHERN CALIFORNIA

## Globus Medicus

**WOW FACTOR** Allows transfer and review of medical images in near real time among grid-enabled sites

**BY DREW ROBB**

It's not only New Age gurus who use visualization techniques to improve people's health. Medical doctors use a growing array of diagnostic equipment to create 3-D and 4-D images of patients. Remotely sharing these massive files, however, is largely impossible using traditional methods because network speeds are insufficient and disparate hospital systems are often incompatible.

As a result, patients have had to bring their own records, in hard copy or on CD-ROMs, to exams. Even worse, doctors have had to rely on faxed copies of images or wait for a digital copy to arrive in the mail.

"The ability to see active 3-D graphics at the point of need enables the right decisions to be made as rapidly as possible," says Clive Longbottom, service director of business process analysis at research firm Quocirca Ltd. in Windsor, England. "Going back and forth between the site and a centralized viewing resource is just not feasible these days."

The answer to the problem is grid computing. "A grid provides far greater resource capability for far less cost than traditional supercomputers," says Longbottom.

That's the approach taken by the Globus Medicus (Medical Imaging and Computing for Uni-

*Continued on page 36*

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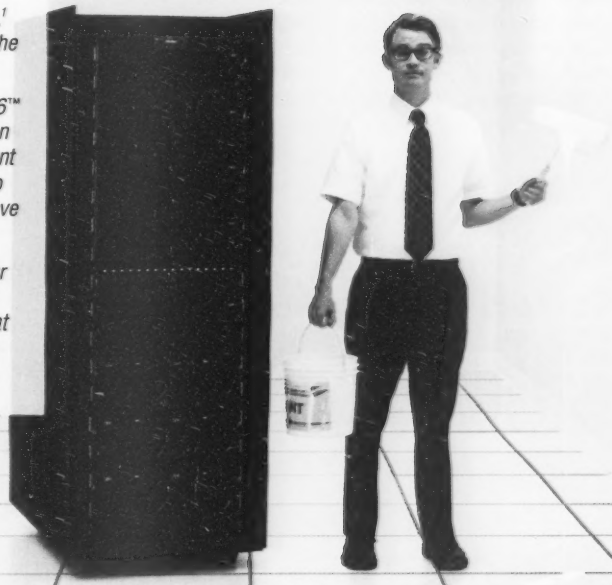

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*Continued from page 34*

fied Information Sharing) project, which uses grid computing over Internet and Internet2 connections to exchange images between medical centers in the U.S. and Canada. With Medicus, doctors can view images immediately and share them with experts worldwide when a second opinion is needed.

"Grid technology provides the technical foundation to enable large-scale 3-D and 4-D image transfer," says Stephan G. Erberich, leader of the Medicus project and an assistant professor of research radiology and biomedical engineering at the University of Southern California's Children's Hospital of Los Angeles.

"Medicus added grid publication and discovery of Digital Imaging and Communication in Medicine [DICOM] images, [the standard] used by all medical imaging devices," Erberich says.

Medicus was developed using the Globus Toolkit, an open-source set of grid-computing middleware from the Globus Alliance, an organization sponsored by the U.S. Department of Energy, the National Science Foundation and the U.K.'s Engineering and Physical Sciences Research Council, among others. It features adaptations of Globus Toolkit components, including ones for data transfer, security and data management.

Authorized users can access any of the patient files in the system, regardless of which institution holds them. This model is applicable only to clinical trials, however, since trial participants agree to have their records made available to others involved in the research.

The project started in 2003 and has grown to include 41 medical centers. It will soon expand to cover all 230 centers of the Children's Oncology Group. Initial developers were Erberich, as well as Ann Chervenak and Carl Kesselman from USC's Information Sciences Institute. The National Cancer Institute and other organizations have donated $300,000 in funding.

"What is unique is the ability to do remote visualization using open source," says Addison Snell, vice president and general manager at Tabor Research in San Diego. "And it's at a price point where it becomes effective to integrate into a hospital workflow environment."

Since DICOM images weren't designed for distributed access, Erberich and his team had to develop a security model that allowed patients to control access to the images. Another challenge was to break down the barriers that existed between the systems maintained by different research centers.

"Medicus demonstrates that the silo architecture of health care technology can be overcome by [service-oriented architecture]," says Erberich.

"Now, radiologists can obtain medical images directly from their DICOM display over the grid, doing diagnostic reporting in minutes after image acquisition, rather than in days," he says. ■

# Slice-and-Dice Storage

CLEVERSAFE INC.

**Cleversafe Dispersed Storage**

**WOW FACTOR** Unique algorithms disperse data over the Internet to servers on a grid

**By Robert L. Scheier**

AFTER SELLING his music services company MusicNow to Circuit City Stores Inc. in 2004, Chris Gladwin took a break to organize his own music and photos. It was then that Gladwin realized the usual method — storing multiple copies of data — was complicated and expensive.

A longtime inventor with an interest in cryptography, Gladwin developed algorithms to securely split and save data among multiple nodes and reassemble it when needed. That November, he founded Cleversafe Inc. to commercialize his work.

Now a 29-person company, with Gladwin serving as president and CEO, Cleversafe is funded by more than $5 million from Gladwin and other early employees as well as "angel" and venture investors.

Cleversafe's Dispersed Storage software splits data into 11 "slices" of bytes, each of which is encrypted and stored on a different server across the Internet or within a single data center. This approach provides security, says Gladwin, because no one slice contains enough information to reconstitute any usable data.

The self-healing grid provides up to 99.9999999999% reliability because data can be reconstituted using slices from any six nodes. Scalability is ensured, Gladwin says, because adding more storage requires merely adding servers to the grid or storage to the existing servers.

Among the biggest cost savers, says Gladwin, was the reduction in total storage needs achieved by eliminating the need for separate copies for backups, archives or disaster recovery. Compared with ratios of 5-to-1 or 6-to-1 of "extra" vs. original data in copy-based storage environments, Cleversafe requires ratios of 1.3-to-1 or less. While Gladwin has no specifics on how his software will be priced, he says customers should see savings "at least proportional" to the reduction in total stored data.

Originally, the team thought in terms of gigabytes of data to be stored. "Now," says Gladwin, "we think in terabytes and even occasionally petabytes." He says the first target will be secondary storage, where Dispersed Storage could replace tape and optical drives for backup and archiving.

This approach could "completely change the way storage administrators conduct their daily operations," says John Webster, an analyst at Illuminata Inc. ■

**Scheier** *is a freelance writer in Boylston, Mass. Contact him at rscheier@charter.net.*

# The Everywhere OS

GHOST INC.

## Ghost

**WOW FACTOR** This free PC environment, with a single online file system, can be accessed from any browser

**By Gary Anthes**

"GHOST IS founded on the passionate belief that the Windows and Mac model of your operating system — with your precious applications and data all walled inside one physical computer — is obsolete," says Ghost's creator, Zvi Schreiber.

The Global Hosted Operating System, or Ghost, is the logical next step in a trend to move applications and files from client computers to the Internet, says Schreiber. It is a Web-hosted image of your desktop or laptop — a virtual computer that can be accessed by any client device via a Web browser.

Ghost doesn't require software upgrades or patches for user machines, and it's always backed up. But its key selling point is the mobility and device-independence it offers users, says Schreiber, CEO of start-up Ghost Inc. in New York. "Young people do a lot of computing at school, and business people don't want to carry their laptops everywhere," he says. "People want to get their computing environment from anywhere."

Offered as a set of application services inside a virtual computer, Ghost is free for users. Schreiber says revenue will come from vendors who remit fees to the company when they sell products or services to Ghost users.

Ghost is in an alpha, "open to the public" release, Schreiber says, and it's available at *http://g.ho.st/home*. "We don't feel we are offering a complete service by any means, mainly in terms of the number of applications that are nicely integrated into Ghost," he says. "But that's changing pretty rapidly. By the third quarter, it will be a beta [release]. Not perfect, but really usable."

Ghost users can't use client-based applications like Microsoft Word or Excel, but they can use Web-based alternatives such as Google Docs & Spreadsheets. Schreiber says over the next year or so, he will seek partners to create Web-hosted versions of all popular desktop programs and help users migrate their data to them.

Rick Boyd, a Catholic priest and self-described "computer nerd" in Park Rapids, Minn., says he uses Ghost to host and manage his bookmarks, files and documents. "I use it every day, and I find it very convenient," he says. "I believe that Web-based applications are the future."

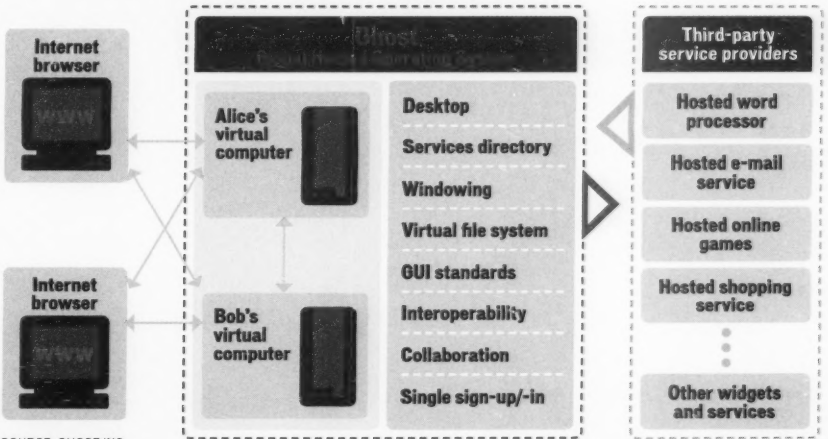
Boyd says he likes being able to access his bookmarks from any computer, no matter where he might be. "But it's not just a bookmark manager," he says, "it's a virtual desktop, and that's very innovative."

Ghost is built from OpenLaszlo, an open-source platform for the development and delivery of Web applications that have the appearance and functions of traditional desktop applications. Ghost is hosted by Amazon Web Services.

Despite the use of OpenLaszlo and Amazon, Ghost developers still had to write a fair amount of software and do considerable systems integration work, Schreiber says.

"We had to think about the architecture very carefully to make it scalable, robust and secure," he says. Scalablility was enhanced by pushing some of the processing and memory use from the server to clients, Schreiber adds. ■

## A Ghost in the Machine

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_INFRASTRUCTURE LOG

_DAY 82: There are so many risks out there. So many things that can happen to our business: natural disasters, spikes in traffic, mergers. How do we prepare? One in three companies don't recover from unplanned downtime. Would we?

_Gil has wrapped everything in the office with bubble wrap. Everything. Just to be safe.

_DAY 83: I'm preparing with IBM Business Resilience Solutions. IBM Business Continuity Services can help us assess our risks and design a proactive plan to deal with them. IBM Tivoli gives us the visibility to diagnose and fix infrastructure problems. And the robust availability features of the IBM System p™ give us maximum uptime. The future feels so much safer now.

_No more bubble wrap. And I have to mail a package. Great.

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# Inkless Photo Printing

ZINK IMAGING LLC

**Zink**

**WOW FACTOR** Millions of colorless dye crystals are heated to produce printed images without ink

BY MARK HALL

Johannes Gutenberg might have judged the folks at Zink Imaging LLC as heretics. After all, they have removed ink from the publishing process, eliminating what has been a fundamental element of printing since the first Bible rolled off the press in 1456. Instead, the scientists at the Waltham, Mass., firm focused their genius on the other key part of the printing paradigm – paper.

"The magic is in the paper," says Stephen Herchen, chief technology officer at Zink, which is short for "zero ink."

Herchen says Zink started as a project inside Polaroid Corp. in the 1990s before the storied camera company spun out Zink as a fully independent entity in 2005. The technology invented at Polaroid and perfected by Zink uses millions of colorless dye crystals layered under polymer-coated paper, making the prints durable enough for long-lasting photos. When the crystals are heated at different temperatures at specific intervals, they melt onto the paper in the traditional cyan, magenta, yellow and black used by inkjet, laser and other printing devices. At the Demo Conference in Palm Desert, Calif., earlier this year, Herchen showed this reporter how it worked by lighting a match and holding it under the sample blank white paper to get the crystals to melt into a rainbow of colors.

According to Zink's CTO, like a lot of scientific teams involved in breakthrough projects, the 50 chemists and physicists involved at Polaroid and then Zink went through a long process of trial and error to create the right combination of molecules that could be controlled on the paper. And the final result had the look and feel of a regular photograph, he says.

Another upside is that consumers will no longer have to dispose of environmentally iffy ink cartridges, Herchen says. And pricing will be less than $2 per 10-sheet pack, the company says.

IDC analyst Ron Glaz says the technology is certainly innovative, but he says not to expect it to replace a desktop or network printer anytime soon. "It's a niche product for a niche market," he says.

Scott Wicker, Zink's chief marketing officer, doesn't disagree. What sets Zink apart is that it "enables printing where it doesn't currently exist," he says, explaining that without the need for ink cartridges or ribbons, printers can now be built into small, mobile devices such as digital cameras.

Wicker says the company will control the manufacture of the Zink printer paper, but partners will build and distribute printer products, an approach Glaz says could improve the likelihood of Zink's success. Wicker adds there are no restrictions on the paper size that Zink can produce, although he says that the first paper to ship with products late this year will be 2 by 3 inches. ■

» Millions of colorless dye crystals layered under polymer-coated paper make for long-lasting photos.

# Smart Talker

LINGUISTIC AGENTS LTD.

## Streaming Logic

**WOW FACTOR** Software bridges natural and computer language, "understanding" the actual meaning

**By Drew Robb**

As computers become integrated into everyday activities, better interaction is needed between man and machine. Unfortunately, the two don't speak the same language.

To ease this interaction, privately held Linguistic Agents Ltd. in Jerusalem developed Streaming Logic, a technology that converts natural language into a form that computers can understand. The process involves knowledge and application of both linguistics theory and computer programming.

"The goal was to comprehend the latest linguistic theories that explain natural language and turn those abstract theories into a set of rules," says Sasson Margaliot, founder and CEO of Linguistic Agents.

Streaming Logic takes a statement in natural language and parses it to determine what linguists call its "logical form," an orderly representation of the meaning of a sentence. The software then automatically converts this into an XML format that can be used by other applications. Margaliot and his chief scientist, Alexandre Demidov, led a team that spent five years developing Streaming Logic. Five iterations later, a beta version of the software was released late last year.

The company is focusing its initial efforts on providing more accurate search engine results, enhancing online advertising and creating better interfaces for content-rich Web sites, says Margaliot. Other features will include automated information services that understand and respond to queries and improved voice-recognition accuracy.

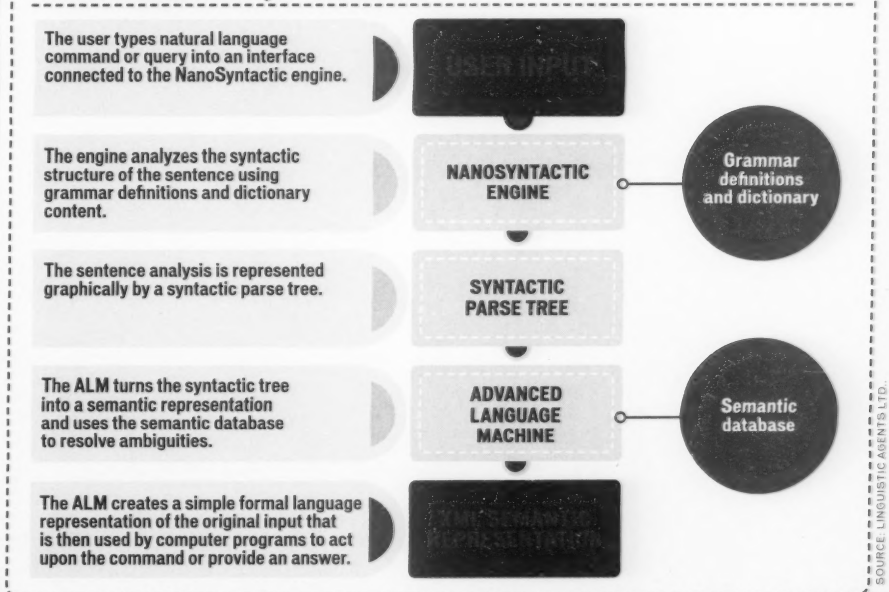
"More and more people are getting online who are not computer literate, but who need to interact with data and applications in whatever their [native] language is," says Ann Grackin, CEO of ChainLink Research Inc., a supply chain management consulting firm in Cambridge, Mass.

Other natural language processors have been on the market for years, but Grackin says Streaming Logic is unique in the way it analyzes the relationships between words to determine the logical form. That form and the meaning it contains are the same, no matter what language the speaker uses. "Because of the language structures, you can port from one language to another," she says.

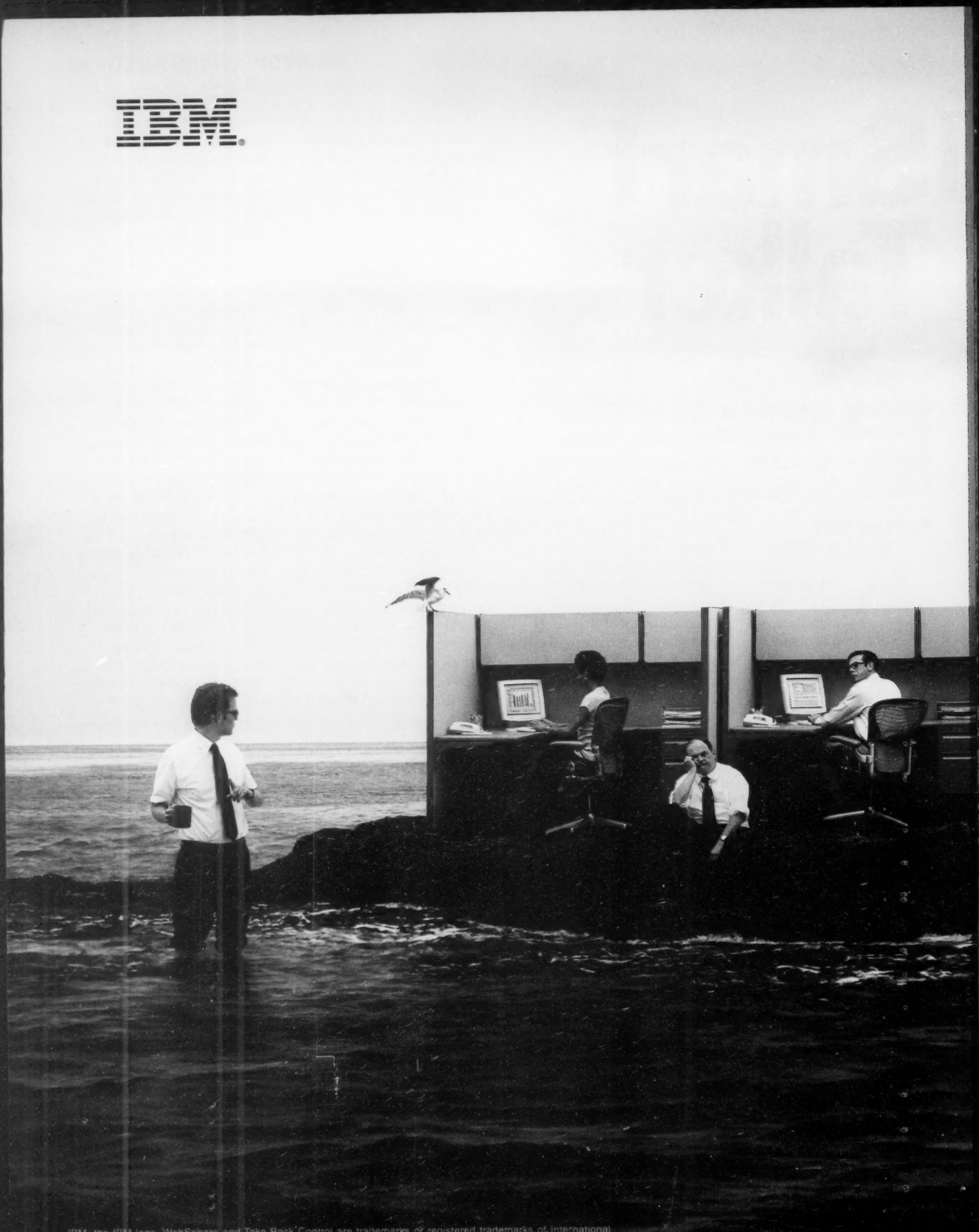
Margaliot says the company is refining and expanding the English semantic database and plans to add languages. The software will most likely become an embedded feature of other applications such as business intelligence and ERP systems. Since it does the parsing of natural language into machine language, the software will make it easier for developers to create applications by reducing the time spent defining and tagging words that a speaker might use to interact with the application.

"It's time to change the way we interact with software and make it more intuitive," says Margaliot. "What can be more intuitive than natural language?" ■

## Translation, Please


The user types natural language command or query into an interface connected to the NanoSyntactic engine.
USER INPUT
The engine analyzes the syntactic structure of the sentence using grammar definitions and dictionary content.
NANOSYNTACTIC ENGINE
Grammar definitions and dictionary
The sentence analysis is represented graphically by a syntactic parse tree.
SYNTACTIC PARSE TREE
The ALM turns the syntactic tree into a semantic representation and uses the semantic database to resolve ambiguities.
ADVANCED LANGUAGE MACHINE
Semantic database
The ALM creates a simple formal language representation of the original input that is then used by computer programs to act upon the command or provide an answer.

SOURCE: LINGUISTIC AGENTS LTD.

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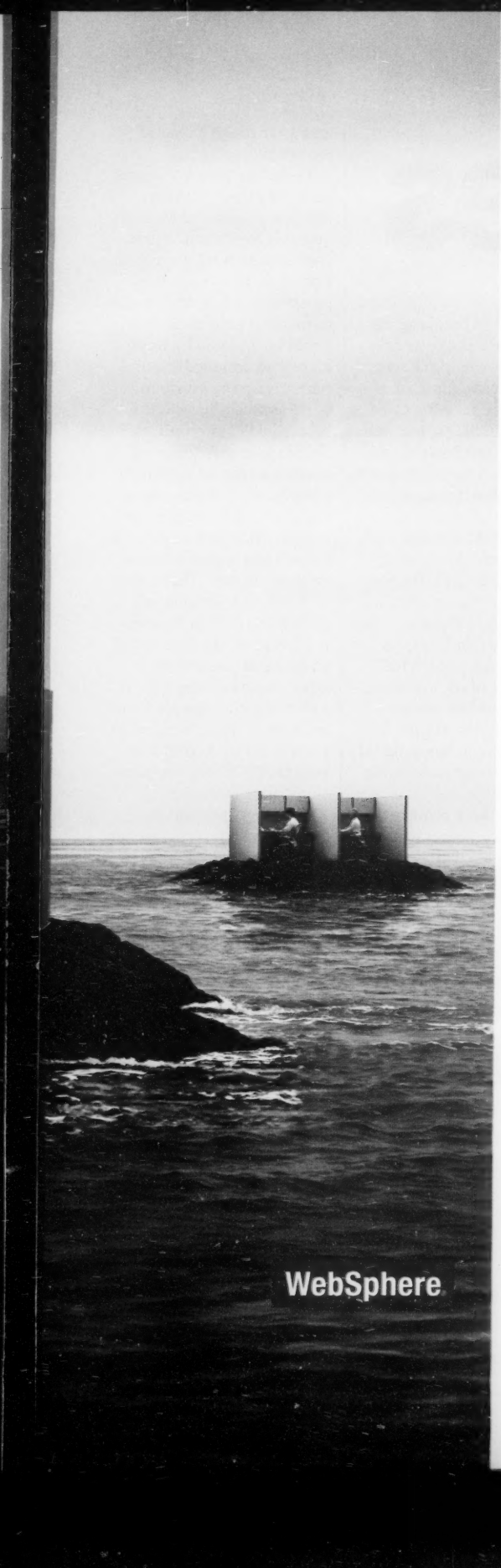


_INFRASTRUCTURE LOG

_DAY 84: Feeling really disconnected. We're not getting the most out of our existing assets. Service and application integration is a nightmare. Our connections are restrictive. We've got to stop working on these islands.

_Please rescue me from this lack of connectivity.

_DAY 87: I've taken back control with IBM WebSphere solutions. Now we can service-enable and connect our existing assets for mission-critical goals. We can reuse existing applications and save money by eliminating redundant systems. Now we're ready for any SOA integration project.

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# Bitty Bytes

HEWLETT-PACKARD LABORATORIES

## Memory Spot

**WOW FACTOR** Just 2mm to 4mm square, this wireless data chip can be stuck on, or embedded in, any object

**By Gary Anthes**

An "audio photograph" — it was a good idea in concept, but it didn't quite work out in practice.

In the late 1990s, a researcher at Hewlett-Packard Laboratories glued a 1-in.-square circuit board to the back of a photograph and showed that it could play a recording related to the image when it was plugged into a special device.

Problem was, users didn't think of the electronic photo as a photo anymore, and the contacts on the circuit board were prone to breaking. "It wasn't a good implementation," acknowledges Howard Taub, associate director of HP Labs in Palo Alto, Calif.

But the audio photograph got HP started down a path that led last year to Memory Spot. A tiny wireless device that can be affixed to almost anything, Memory Spot acts like a radio frequency identification (RFID) tag on steroids.

The current Memory Spot chip ranges from 2mm to 4mm on a side, stores half a megabyte of information, and reads and writes via a built-in antenna at 10Mbit/sec. It also includes a digital microprocessor and analog circuits for RF signals.

Memory Spot requires no battery, receiving power via a process called "inductive coupling," by which electronic devices can transfer energy through a shared electromagnetic field.

Taub says various parties, including the U.S. Army, are now evaluating Memory Spot. He says applications could range from animated postcards to ultrasecure passports and identity cards to medical records that could be updated by physicians and attached to patients' hospital wristbands.

HP is working with the Near Field Communication Forum to see if Memory Spot readers might be put into cell phones. "For example, you put a Memory Spot on a movie poster and then transfer and play a movie trailer on your phone," Taub says.

"I was very impressed with it," says Tim Bajarin, president of San Jose-based Creative Strategies Inc., who was briefed by HP. "It can bring intelligence to inanimate objects. It could be used in all kinds of things, not just RFID-type applications like inventory."

Memory Spot was invented by senior researcher John Waters at HP Labs in Bristol, England. Waters' design goals included making a device that was very small, didn't require much power and had a fairly sophisticated processor.

"The hard part was integrating all those things," Taub says. "We used to have an expression: 'Faster, better, cheaper — I'll give you any two out of three.' In the world we live in today, you want all three."

Memory Spot is just about ready for market, Taub says. In fact, he says, the business issues around commercializing it are tougher than the technical issues. ■

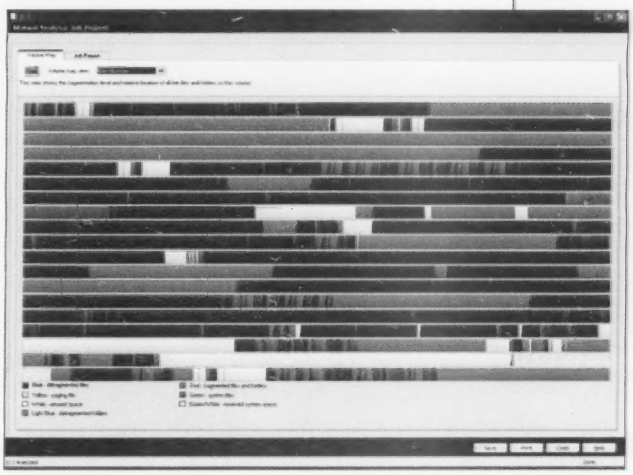
**«With Memory Spot, tiny data chips could be embedded in paper, adding video and sound to books and magazines.**

Advertisement

# Restore and Maintain Peak Performance

## Eight things you need to know—a special report

As an IT Professional, you know the importance of maintaining system performance and reliability. Your team is the one called to the rescue when desktops or servers crash, slow down or freeze. Many of these issues stem from a single, hidden source—disk fragmentation.



Diskeeper's interface shows fragmentation levels and relative location of all the files and folders on the selected volume.

**1. Reliability issues commonly traced to disk fragmentation:** Crashes and system hangs/freezes; slow boot times and boot failures; slow backup times and aborted backup; file corruption and data loss; errors in programs; cache issues; hard drive failures.

Having files stored contiguously on the hard drive is a key factor in keeping a system stable and performing at peak efficiency. Even a small amount of fragmentation in your most used files can lead to crashes, conflicts and errors.

**2. The weak link in today's computers:** A computer system is only as fast as its slowest component. The disk drive is by far the slowest of the three main components of your computer: CPU, memory and disk. Even with the fastest CPU, system performance would be affected by disk fragmentation.

**3. Is real-time, automatic defragmentation needed in today's environment?** More than ever! Large disks, multimedia files, applications, operating systems, system updates, virus signatures—all dramatically increase the rate of fragmentation. Fragmentation increases the time to access files for all common system activities including opening and closing Microsoft® Word documents, searching for e-mails, opening web pages and performing virus scans. To keep performance at peak, fragmentation must be eliminated instantly.

**4. Increased server uptime:** Fragmentation can cripple server performance and reliability resulting in downtime and lost production. Diskeeper can easily and safely be used on your servers, including: file and print, web, domain controllers, SQL, Exchange, and any other database or application servers.

**5. Virtualization and fragmentation:** Server virtualization can be used to reduce the number of physical systems for more efficient CPU utilization. However, there is a downside: the disk subsystem must now account for increased disk I/O. Disk fragmentation is the primary cause of unnecessary I/O overhead. Automatic defragmentation is more important than ever for maximum performance.

**6. Hidden scheduled defragmentation costs:** Scheduled defragmentation is not "free"—it has heavy hidden costs, such as IT time to set and monitor defrag for every system. This results in either staying after hours to defrag, giving the users administrator privileges (not likely!), break-fix handlings, or more often no defrag whatsoever.

**7. How do I find out how much fragmentation I have?** Download a free trial version of new Diskeeper 2007 at:

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**8. Advanced, automated defragmentation:** Maintaining systems can be a daunting task—maintenance, including regular defragmentation, must take place regularly to keep them running at peak levels. However, with constant uptime required, scheduling such processes to run at the right times can be tricky, since while running they pose a considerable drain on system resources.

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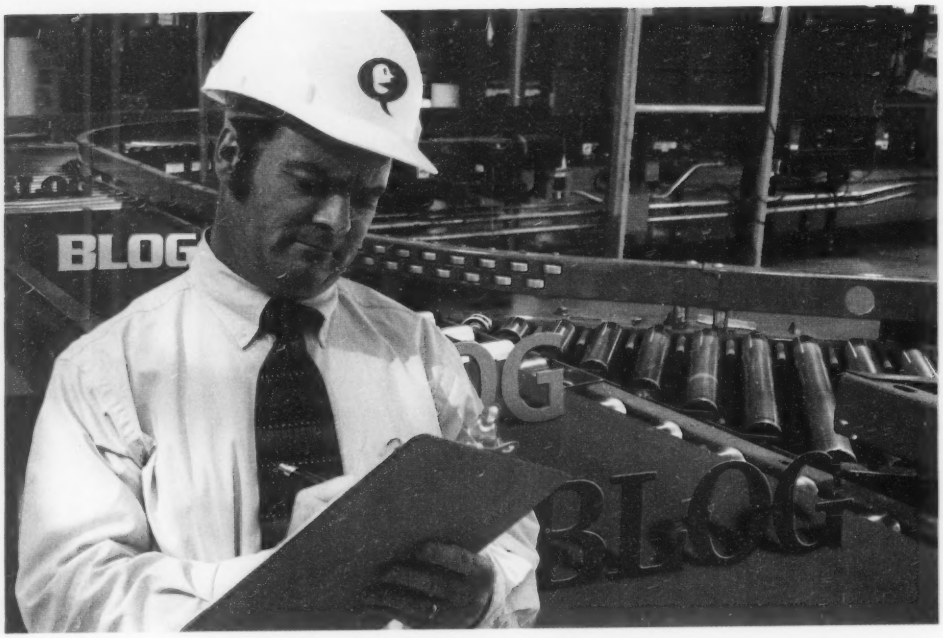


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# Power-Packed Memory

**NORTHWESTERN UNIVERSITY AND NEC LABS AMERICA**

## CRAMES

**WOW FACTOR** Memory compression technique doubles storage in embedded systems, such as cell phones

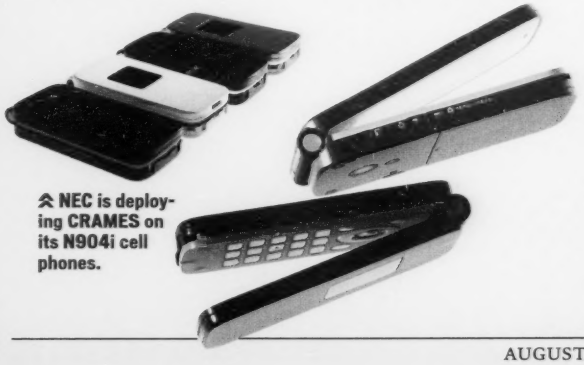
**BY DREW ROBB**

Small mobile devices are inherently limited in the amount of memory they can carry, thereby restricting what applications they can run.

"You will always have limited storage on mobile devices, because you want the device to be small and portable and very power-efficient," says Craig Mathias, principal at Farpoint Group, a wireless and mobile consultancy in Ashland, Mass., and a *Computerworld.com* columnist. "Memory compression can help in that regard, multiplying the efficiency of the storage you do have."

This summer, Tokyo-based NEC Corp. will release a new software memory compression technique called CRAMES (Compressed RAM for Embedded Systems) on its N904i cell phones. CRAMES more than doubles memory capacity while limiting power drain and performance loss to only 2.7%.

The company's research arm, NEC Laboratories America Inc., began researching compression technologies eight years ago. In 2004, lab consultant Haris Lekatsas and department head Srimat Chakradhar decided to explore integrating compression into the operating system.



NEC is deploying CRAMES on its N904i cell phones.

CRAMES was developed by Lei Yang, a doctoral student at Northwestern University, along with her academic adviser, assistant professor Robert P. Dick.

"The idea was to transparently compress and decompress selected regions of memory to drastically reduce the memory footprint of embedded applications," says Dick. "By carrying out online compression and decompression entirely in software, hardware platform redesign could be avoided."

Dick says researchers had previously tried compressing software but rejected that approach because it drained power and hurt performance. The Northwestern team aimed to find a way to run applications that required more memory, but without the drain.

To manage compressed memory, the development team decided to use the Linux kernel's swapping mechanism to determine which pages should be compressed. Initially, they were able to reduce the drain to 10% using the established LZO compression algorithm. To further boost performance, the team developed a new compression algorithm called PBPM (Partial Based Partial Match). Other refinements include compressing data only when memory is low, modifying the memory management technology to reduce fragmentation and modifying the Linux kernel so it can eliminate defunct processes when necessary. Together, these steps held power drain and performance loss to 2.7%.

"Embedded system designers and especially designers of cellular phones and [PDAs] need to pack more functionality on the devices every year to remain competitive," says Dick. "CRAMES has allowed NEC to pack in more functionality without waiting for the next cycle of hardware design to catch up with the new increasing demands on memory." ■

## COMPUTERWORLD HORIZON AWARDS 2007

**AWARD NOMINATIONS** were collected online and from expert scouts. Judges then scored the candidates, and 10 winners and 10 honorable mentions were chosen.

**Scouts:**

**Anatole Gershman**, distinguished service professor of computer science, Carnegie Mellon University

**Paul Gillin**, principal, Paul Gillin Communications; founding editor in chief, TechTarget Inc.; former editor in chief, *Computerworld*

**José-Marie Griffiths**, dean and a professor at the School of Information and Library Science, University of North Carolina

**David Orenstein**, communications and PR manager, Stanford University School of Engineering

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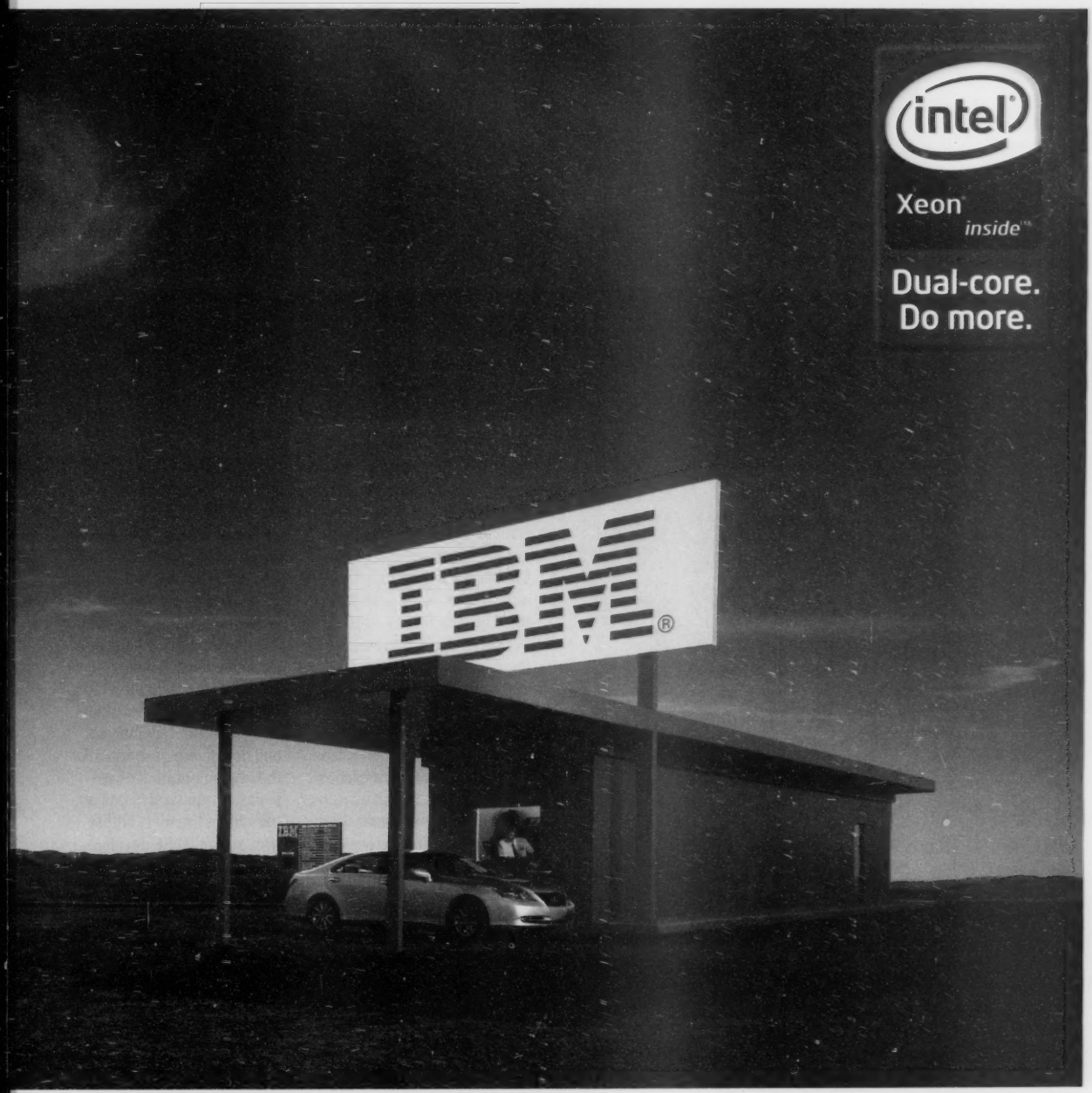


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# Career Watch

## Embracing the Customer

**WHEN SATISH AJMANI** became CIO last year for Orange County in Santa Ana, Calif., the IT organization had what he called a "break/fix" mentality – when something went wrong, the staff excelled at fixing it. However, he says, "that led to a false sense of being really customer-focused." In fact, when he met with business executives, they complained that IT cost too much, took too long to complete things and pushed cookie-cutter solutions.

Since then, Ajmani has worked to transform the group into a truly customer-oriented organization. For instance, he has created teams of staffers dedicated to understanding user needs. "Their role is to be present with customers, bring their needs back to IT and ensure that project managers deliver on those needs," he says.

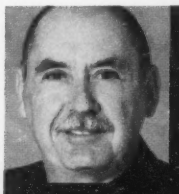
In addition, all staffers who have contact with users are trained to see things through the eyes of the business users. "Rather than thinking, 'It can't be done,' they're learning to think, 'Let's figure out a way to do that,'" Ajmani says.

These skills are crucial for success as an IT professional, according to Anita Leto, a senior consultant at Ouellette & Associates Consulting Inc. in Bedford, N.H., and that's becoming crystal clear to Orange County's IT group. For instance, during a recent project to replace the county's ERP system, solution architects started out by driving users toward the platforms with which the staffers were most familiar. As soon as they were redirected to follow a systematic way of considering users' needs – such as required transaction volumes and number of concurrent users – they saw the danger of their former approach. "They realized we'd be flat on our face in the first month of operation with their preferred platform," Ajmani says. "They saw that the customer had to be involved in the discussion."

**CAREER ENHANCER**

– MARY BRANDEL

## ■ ASK A PREMIER 100 IT LEADER
# Barry Shuler



**TITLE:** Senior vice president for IT strategy and chief technology officer

**COMPANY:** Marriott International Inc., Washington

Shuler is this month's guest Premier 100 IT Leader, answering readers' questions about training and certification. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month.

**With so many jobs going overseas, is it wise for an older professional like me, with over 20 years of experience, to retrain in network support and administration? Courses are expensive, and my company won't reimburse me on the tuition. Networking is a core requirement for enterprise-class application systems today, and it will continue to be. I believe that the need for network support and administration will be strong for many years to come. So, I don't believe that any jobs going overseas will materially affect demand for network support and administration in any particular market.**

**Which programming languages are the best bets for staying employable through a long career? .Net and J2EE are the predominant operational environments for system development. Within these, C# and Java are key skills.**

**I would also suggest staying abreast of Rich Internet Application development environment tools. In terms of open source, knowledge of areas like LAMP (Linux, Apache, MySQL and PHP5) and Ruby on Rails would also be good things to have basic familiarity with.**

**I am just beginning a career in IT. Which certifications are most valuable to pursue? It depends on your career path.**

**■ If you are ultimately looking to manage in the IT environment, the Certified Project Manager program by the Project Management Institute is important.**

**■ If you are following an application development and integration path, then skills in object-oriented analysis and design are essential. For the implementation of applications under this design paradigm, the tools within .Net and/or J2EE development environments are key.**

**■ If you are following the path of server and system software engineering, support and administration, Microsoft, IBM, Lenovo, Dell, HP, Cisco and other vendors all have certification programs.**

**■ If you are following an enterprise architecture path, then certifications related to service-oriented architecture, such as TOGAF (The Open Group Architecture Framework) and ITIL (Information Technology Infrastructure Library), are important.**

**And, in general, for the longer term, understanding how to design and develop application functionality in a Web services style of computing will be valuable.**

PAGE COMPILED BY JAMIE ECKLE.

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**Fax** (508) 875-4394

**President/Publisher/CEO**
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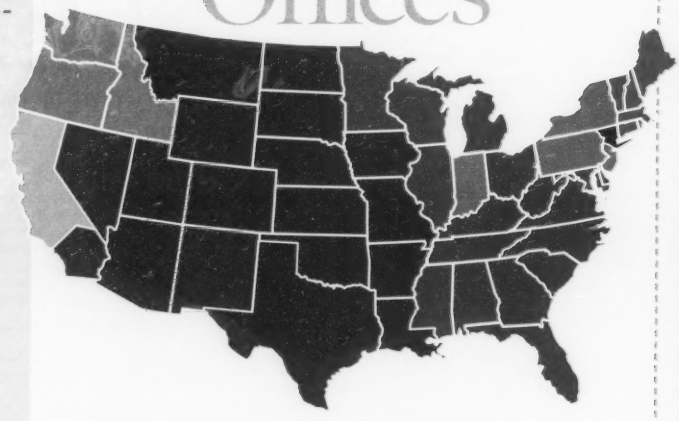

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# Shark Tank

## TRUE TALES OF IT LIFE AS TOLD TO SHARKY

### Hardware Problem

Late one night, support pilot fish gets a call from the foreman at the steel mill where he works. Problem: The printer has stopped working. As a result, they can't print shipping tags, coils of steel are backing up, and the parking lot is getting full of steel-hauling trucks. "After making several suggestions to help the foreman work through the problem, and after the air was turned blue by his colorful responses, I loaded up my tool kit and made the trek out to the shipping department," says fish. "I asked the foreman to show me the printer in question. He pointed to a 20,000-lb. coil of steel. Underneath the coil was a crushed-flat printer. After installing a new printer, the problem went away."

### That Would Work

It's Saturday morning when this pilot fish is paged out of his sleep by a teller at one of the locations that fish supports. "She said the normal teller workstation was down and needed work," fish says. No problem, says fish; until it's fixed, simply move to the second teller station for the day. But my money is in the cash drawer, she tells fish, and I can't move it because it's a permanent money drawer, not the removable kind. "I told her, that's OK – just move the money to the other drawer," says fish. "After several moments of thought, she said, 'Oh yeah, I guess I could do that.' "

### There's Always A Reason

IT manager pilot fish for a restaurant chain gets a message from the operations director: Find out why this store's computer crashed. Fish calls the store, and the manager says it crashed in the middle of dinner for no reason. Fish digs a little: Any storms in the area? Did your lights flicker? Was anything plugged in where it shouldn't have been? Manager: "Well, we did plug a bug zapper into the same outlet as the server because of the fly problems we've had in the office. . . . "

### Why We Ask Why

User sticks her head in the office of IT coordinator pilot fish. "What are our size limits for e-mail?" she asks. That's a red-flag question for fish, who tells her they don't really have any limits for reasonable e-mail traffic, and why is she asking? "I have a PDF I need to send to a client," user says. How big? fish asks. "I don't know, about 500MB," says user. Reports fish, "I calmly explained that, due to our architecture, it would take about two days to send and all network traffic would come to a halt in the office, so it would probably be better if she burned the file to CD and mailed it instead."

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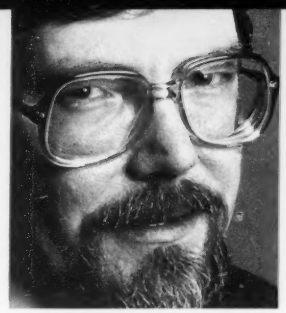
■ FRANKLY SPEAKING

Frank Hayes



# Grokking SCO's Demise

THE SCO GROUP'S $5 billion threat against Linux is effectively finished. On Friday, Aug. 10, U.S. District Judge Dale Kimball ruled that SCO doesn't actually own the copyrights that it was using to threaten — and in some cases, sue — Linux users.

Of course, you already got that news, thanks to everyone from *The Wall Street Journal* to IT news sources.

And they all got it thanks to Groklaw.

It was the Web site Groklaw.net that broke the news and posted the complete 102-page ruling; after that, it was picked up by mainstream media and trade press. In fact, it's Groklaw that has covered every aspect of SCO's legal fights with Linux vendors IBM, Novell and Red Hat and Linux users DaimlerChrysler and AutoZone ever since paralegal Pamela Jones started the site as a hobby in 2003.

It's Groklaw that has published every scrap of legal and technical information available on the cases — every brief, deposition and ruling, along with press releases, technical documentation and historical information.

It's Groklaw's loose network of volunteers that has haunted the Utah courthouse, collecting paperwork, reporting on hearings and transcribing everything in sight.

It's that same crowd of volunteers that has picked apart arguments, dredged up old news stories and computer manuals, and generally followed the SCO lawsuits with the kind of enthusiasm usually reserved for rotisserie baseball or, well, Linux.

All that has made it easy for reporters, analysts and deep-thinkers keeping an eye on the lawsuits. We just filtered out the partisan crowd noise — no mistake, this is a pro-Linux crowd — and dug into that virtual mountain of legal documents. Everything was there, posted, transcribed, organized and searchable.

That's why we all picked up the ruling from Groklaw.

And that treasure trove of documents is how we know now that SCO is stick-a-fork-in-it done.

**■ Groklaw's treasure trove of documents is how we know now that SCO is stick-a-fork-in-it done.**

See, those of us who have actually read our way through the SCO legal saga over the past four and a half years have already heard the claims and counterclaims in excruciating detail, walked them past legal eagles and made sense of the minutiae along the way.

So when Judge Kimball ruled this month that Novell, not SCO, owns the copyrights to Unix, we know he eliminated the basis for SCO's copyright claims against IBM, Red Hat and AutoZone, too. (DaimlerChrysler went to court in 2004 and demolished SCO's lawsuit against it with a different set of arguments.)

And when the judge ruled that Novell has the right to quash any lawsuits based on Unix licenses, we know he gutted what remained of SCO's legal threats.

We even have a good idea of how likely SCO is to successfully appeal. (The odds aren't good.)

But those rulings weren't much of a surprise, either. Once documents in the lawsuits started to pile up, it was possible to draw hard conclusions based on the evidence presented to the court, rather than public-relations bluster.

Which explains why so many analysts were able to tell their clients there wasn't much legal risk to worry about with Linux — and tell them that literally years before the hammer finally fell on the litigation.

All thanks to the Groklaw crowd's desire to pile up every suit-related document they could find.

Did Groklaw really have an impact on those court cases? Naaah. The impact was on the rest of us. That collection of documents gave SCO's suits a transparency that's impossible to come by with most IT industry litigation.

And we need it. It's tough enough to make IT decisions based on vendor claims, technology promises and user requirements. Lawsuits just muddy the waters more. Anything that helps provide a little more clarity is good news.

For that, we all owe Groklaw thanks. ■

**Frank Hayes** *is* Computerworld's *senior news columnist. Contact him at frank_hayes@computerworld.com.*

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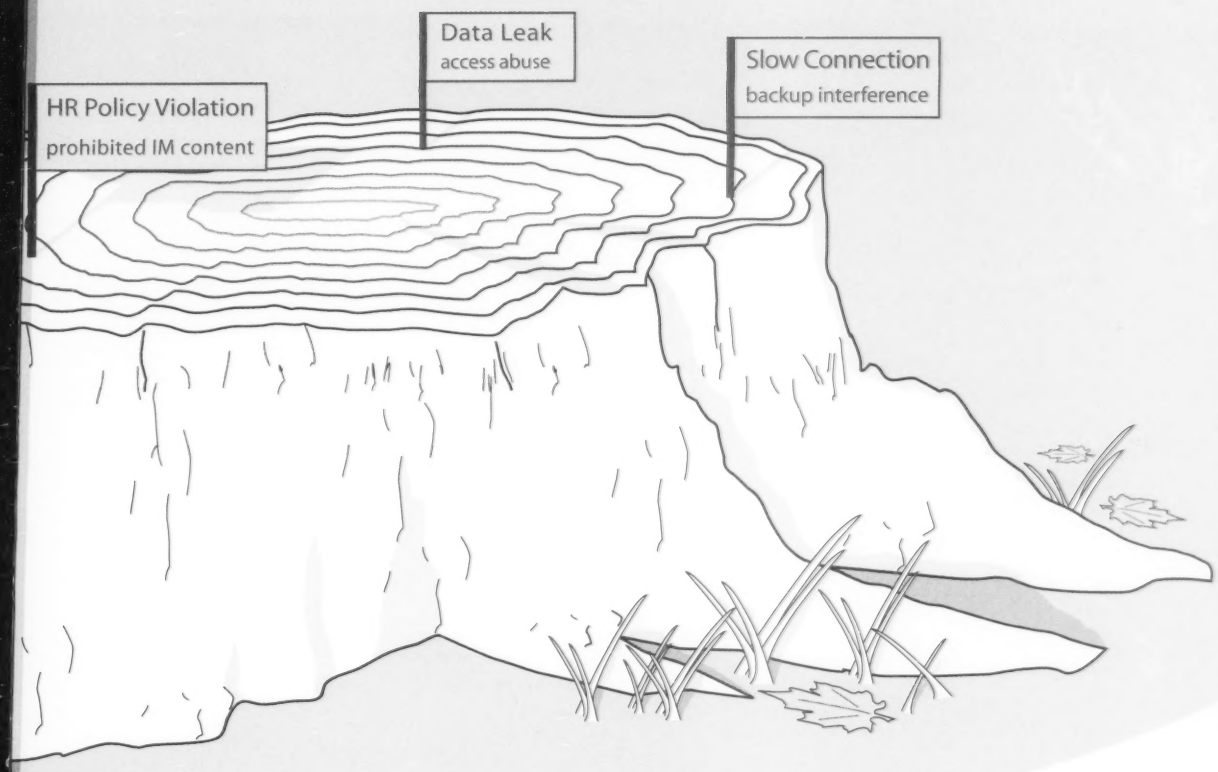


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